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SURGICAL POSTURES.

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Every artisan, craftsman, artist, musician, recognizes in the most advantageous arrangement of his arms, hands and body, the first prerequisite to successful work. In the healing art even in such fundamental procedures as feeling the pulse, percussion, etc., is the importance of proper posture manifest.

Surgical posture may best be defined as the attitude of greatest advantage assigned to the patient and the relative position assumed by the surgeon in the process of an examination or in the conduct of an operation.

The thoroughness, ease, and rapidity with which an examination or operation may be performed is largely dependent on the correct observance of detail in the disposition of the body and the members of the patient and of the surgeon himself.

Examination of the Pharynx (Infant.)

The speedy, thorough examination of an infant's throat is only possible if the little patient be held so as to preclude any struggling.

Directions.—The mother or nurse is to take the infant up with the head looking over her right shoulder; her right arm encircles the body of the child, and its hands are pinioned behind its back by the grasp of her left hand. The head of the infant is turned towards the light. The position of the surgeon obviously is such as not to obstruct the light. His left hand is placed on the child's head to steady it and at the same time to better direct the light into the pharynx. The right hand is used to manipulate the tongue-depressor.

Caution.—It is important that the nurse or assistant assume the erect posture so that the hands and feet of the infant are free, for by obtaining a purchase for the feet the child will otherwise be able to wrest its body from the hold of the nurse and render any examination impossible.

Examination of the Ear (Infant.)

The assistant is seated. The infant is placed upon his lap. Its dependent limbs are immobilized by the grasp of the thighs; the arms are pinioned behind the back by the grip of one hand of the nurse and the head is firmly drawn up against the chest of the assistant with the other hand. The immobilization of the hands, feet and head in the erect posture thus given to the infant makes this position far superior to that of recumbency.

If, furthermore, the assistant be seated on a revolving chair, the adaptability of the posture to the requirements of the operator is materially bettered.

The Prone-Horizontal Posture (Infant.)

As ordinarily used for examinations or brief operations about the head and neck of infants without anesthesia, the maintenance of an immobile prone horizontal position necessitates the enveloping of the upper and lower extremities in a blanket. One assistant must be assigned to hold the body on the table and another to secure the head.

The Lateral-Horizontal Posture (Infant.)

Where the prone position is not necessary the infant may be held in the lateral horizontal position by pinioning its hands behind its back in the grasp of one hand of the assistant, whose other hand firmly holds the head in whatsoever position may be desired. The lower extremities are in no way secured, thereby obviating any possibility of the child obtaining a purchase with which to dislodge itself from the position.

Examinations and Treatment of the Head (Infant.)

Horizontal Posture.

The necessity frequently arises for the surgeon to have the head of the infant fixed and yet have both his hands available for manipulation. This may be accomplished by first seating the child on the lap of the nurse or mother. The latter faces the surgeon, seated, who then places the head between his thighs. The body of the infant then rests to one side on the lap of the nurse (mother). Its hands are grasped by the nurse to the fore; its legs are allowed to dangle so that the child may dislodge itself. The surgeon's hands are thus free for any manipulations about the face. This posture is particularly useful in making applications to the eye-

Fig. 1. Posture for Examination of Infant's Pharynx.

Fig. 2. Posture for Examination of Infant's Ear.

Fig. 3. Lateral Horizontal Posture.

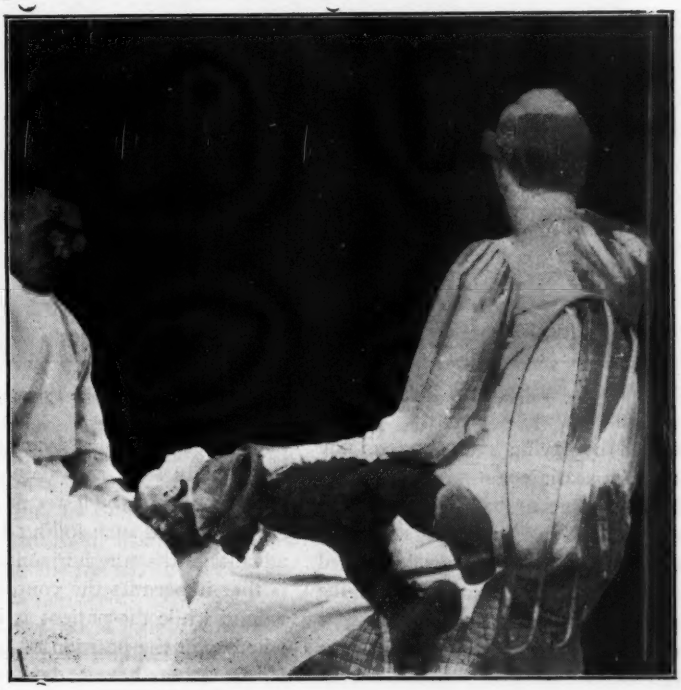

Fig. 4. Horizontal Posture on Nurse's Lap.

lids and to the anterior nares and in such minor operations about the face as have to be executed without anesthesia.

POSTURE OF FORCED ABDOMINAL FLEXION.

This attitude is given to the body of an individual who betrays signs of approaching syncope. It is to it, and the increased intra-abdominal pressure also diverts the blood to the head and prevents its return by the veins. The return of color to the head upon the assumption of this position is therefore very rapid. The posture is unfailing in the certainty with which it restores the patient. It ought to supersede the old advice to lay the patient

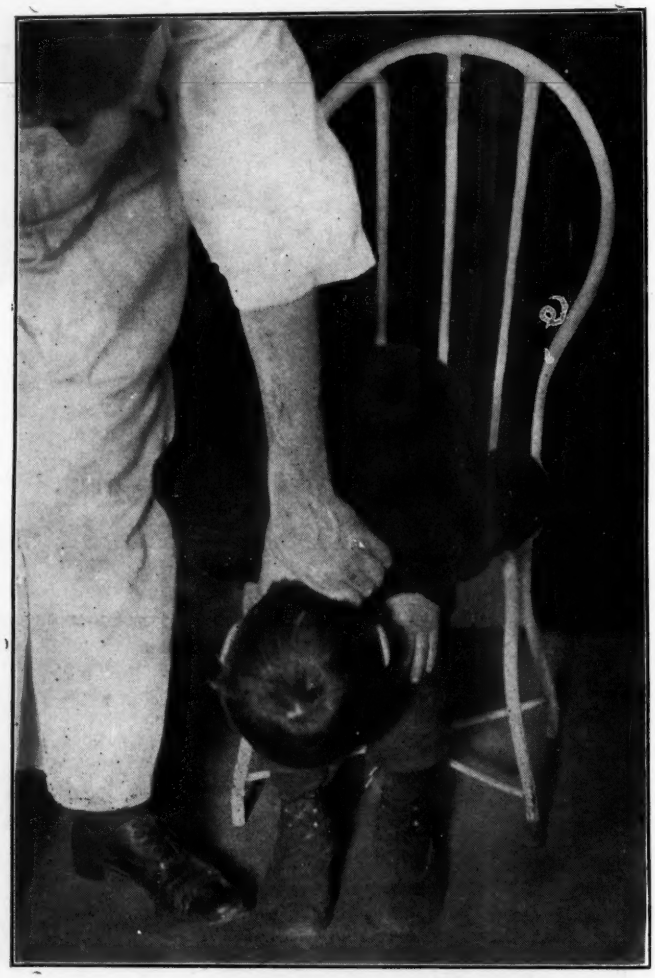

Fig. 5. Posture of Forced Abdominal Flexion to Prevent or Overcome Syncope.

speedily accomplished by laying one hand on the patient's neck, rapidly seating him, if he be not seated, and flexing the spine to such a degree that the head is brought to lie between the legs. If the patient has already fainted then he may be placed and maintained in this posture by pressure on the neck as indicated. When only prodromal signs have appeared the patient may be directed to assume the posture himself.

The head being dependent, the blood gravitates flat on the floor. In emergencies the surroundings are usually such that the individual's wearing apparel suffers by the latter procedure. In the posture here described such soiling does not occur. The one advantage that the horizontal posture has, however, is that it permits the continuance of work about a wound while the patient is in an attack of syncope, whereas in the position of forced abdominal flexion all operations have to be suspended.

(To be Continued.)

A NOTE ON THE AFTER-CARE OF INTERNAL URETHROTOMY.*

BY GEORGE KNOWLES SWINBURNE, M.D.,
NEW YORK.

Although the necessity for internal urethrotomy to-day seldom occurs—I refer to internal urethrotomy as taught by Otis—still there are cases in which I find, in my own work, this operation to be of great value.

An objection to the operation is that sometimes we have hemorrhage out of proportion to its importance, and it was as a result of a search for measures which might lessen the amount of hemorrhage that for a number of years now I have practised my present plan of after-treatment in these cases.

One factor in promoting tendency to hemorrhage is the fact that the operation of necessity is a cut into the spongy portion of the urethral canal. At the time of operation there is but little hemorrhage, and so long as the penis is in the flaccid state, the blood clots in the wound are sufficient to prevent further bleeding as long as the patient remains quiet. The act of urination has but little tendency to remove these clots or plugs, but if erection occurs these plugs are readily washed out by the consequent dilatation of the vessels and increased blood pressure, and more or less hemorrhage may result. This occurs with more or less frequency during sleep. Although I have had cases when there was no bleeding whatever after the first day, ordinarily I have noted that on the second, fourth and sixth night following the operation there is often some bleeding, of greatest extent on the second and less on the fourth and sixth. If the patient be in the hospital where he can be watched, the hemorrhage need give but little concern, except in those unfortunate but rare cases of hemophilia.

Another tendency to promote hemorrhage and increase the liability to the nocturnal hemorrhage, is produced by the passage of sounds following the operation. This is done according, I believe, to the teaching of Otis, on the second, fourth and sixth day following the operation, and after that at greater intervals. This was with the idea of keeping the wound from healing by first intention, or to keep the stricture from healing by first intention and thus supposedly defeating the purpose of the operation.

It occurred to me on theoretical grounds, at least, that the passing of the sounds was an unnecessary procedure. Generally the stricture tissue lies beneath the surface of the mucous membrane, and it contains many elastic fibers which would retract somewhat after thorough division of all the bands composing the stricture. So it occurred to me that if the linear wound of the mucous membrane were allowed to thoroughly heal before any instrumentation of the urethral canal, then even if there were still some narrowing due to a growing together of the fibrous bands, that these could readily be treated by sounds or the different dilating instruments, should it be found necessary.

The plan I adopted about six years ago was this: after operating and being sure that no bands of stricture were left behind, the patient was kept three days in bed and then allowed to go home and even about his business, but the urethra was left untouched by instruments for two full weeks following the operation. While I have in this time operated only upon six cases, it is a noteworthy fact that in not one of these cases was there a recurrence of narrowing, and in the first case, done six years ago, there still is no tendency to a return. In all the cases an olive-tipped bougie large enough to go through the meatus never detected the slightest narrowing at any time after the operation.

These strictures were from one and a half to four inches from the meatus. All of these cases were of the thickened, firm annular narrowing, very elastic, and remaining unchanged after a prolonged systematic treatment by the Kollman dilator carried as far as was thought expedient.

These cases were all alike in their results. So I shall detail but one case, my last one, because it illustrates well the limitation of the Kollman dilator in such cases. This patient was 23 years old when he first came to me three years ago. He complained of painful urination and of pain at other times. His urine was cloudy and he had a discharge, not very profuse, but constant. There were no gonococci. He had had gonorrhea five years before. There was a narrowing of the canal to 16 F at three inches from the meatus. This was gradually dilated, so that a 27 or 28 sound could be readily passed through the stricture, which could be felt by palpation as a thickened ring completely surrounding and hugging the sound. The urine by this time had cleared completely under irrigation. There was no discharge, except at times a very thin moisture. The pain on urination continued, though to a very much diminished extent. At this point I began to use the Kollman dilator at intervals of one week without there being the slightest apparent improvement. This treatment covered a long period—

* Read before the Section on Genito-Urinary Surgery, N. Y. Academy of Medicine, December 19, 1906.

nearly a year. I was able to carry the dilatation with the instrument up to 40 or 41 F without any reaction or discomfort to the patient, and yet a No. 22 F olive-tipped bougie readily detected the site of the stricture.

I advised a resort to urethrotomy, but the patient of his own accord preferred to continue dilatation until he could find an opportunity to take the necessary time. These treatments were kept up two years longer without any perceptible change in his condition. Sometimes treatment would be interrupted for a month or two months at a time to see if possibly absorption would occur. Finally in October of this year he agreed to an operation, which was done early in November. As the meatus readily took 30 F, it was unnecessary to divide it. Under cocain the Otis urethrotome was used, the stricture was cut to 34 F, and as a band could still be detected with a 30 F olive-tipped bougie, the urethrotome was reinserted and a cut to 37 F made at the point of stricture. After this the olive-tipped bougie detected no narrowing at any point. Hemorrhage ceased almost immediately. There was no bleeding that night following the operation. (The operation was performed at 8.30 P. M.). The following night there was slight bleeding; the third night none, and then the patient left the hospital and went to work. The fourth night there was slight bleeding, less than on the second, and there was still less on the sixth. After that all bleeding ceased. Two weeks after the operation I examined the roof of the canal with a 28 caliber urethroscope (using my posterior urethroscope), and could not find the site of the cut. Furthermore the 30 F olive-tipped bougie did not detect the site of the stricture. The patient was examined a week ago, nearly six weeks following the operation, with the same result.

The other five cases were similar to this one, in that they had ceased to improve after treatment by dilatation had been carried on for a lenght of time thought to be sufficient to prove that dilatation was no longer of use. As stated before, the results in all these cases were similar to the one related.

This experience has seemed to me to show the value of the Otis operation in these cases, and I further give patients the opportunity of an earlier operation if they wish it, because this treatment will shorten the length of time of treatment markedly. But I insist on operation only when the urethral condition becomes stationary under systematic dilation. Hemorrhage following operation has been robbed of more than half its terrors by this method of not resorting to instrumentation of the urethra for two weeks after the operation.

"GRIPPE" FROM THE OTOLOGICAL STANDPOINT.*

By Seymour Oppenheimer, M.D.,
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Following the various grippe epidemics of the past twenty years, a remarkable increase of diseases of the mucous membrane lined cavities of the head has been universally noted, and while changes in the upper respiratory tract are a characteristic part of this infection, the aural apparatus has also suffered to a considerable extent, the number of cases of various ear diseases being especially augmented during and immediately following any particular epidemic.

While grippe in itself does not involve the ears to a much greater extent than do many other infectious diseases, yet it is so prevalent an affection that a large percentage of the cases of aural affections is attributable to it. The percentage of aural complications in grippe is actually small, however. Nothnagel shows that of 3,185 contributions to the collective German investigations on the subject of epidemic grippe, 1,209, or 38 per cent., of those reporting cases mention the presence of ear complications. Among 55,263 grippe patients in the German army, diseases of the ear were observed in but 0.5 per cent., and among 30,000 patients in Strassburg, Jankan found ear disease in the same proportion. The Swiss reports, however, show 2 per cent. in 1,508 cases. The statistics, it must be remembered, are from collective investigations among general practitioners. Among otologists who see few of the mild acute cases, but observe especially the after-effects of the grippe epidemics, the percentage of aural complications or sequelæ is undoubtedly higher.

As grippe in its infectious character shows a special predilection for the mucosa of the upper air passages, it can readily be appreciated that in those cases in which the middle ear becomes involved, the infection extends from the nasopharynx through the Eustachian tube, the mode of invasion differing in no way from that of other infectious diseases.

In practically all the aural affections that are produced by this disease, the chief characteristic, as compared with the same conditions following other infectious diseases, is the intense hyperemia present. All the tissues involved are engorged with blood far more than is noted in the inflammation

* Presented in a symposium on "grippe" at a meeting of the Eastern Medical Society, of New York, November 2, 1906.

caused by other affections. The symptoms in general, therefore, are largely dependent upon this pathologic condition, and both subjectively and objectively they express this intense hyperemia.

Probably the most satisfactory manner of describing the changes that take place in the auditory apparatus as the result of grippe is to commence with the external auditory canal and follow the various divisions of the ear from without inwards. Not infrequently during a severe epidemic of this disease, the external canal may alone be affected, and under such circumstances the inflammation produced is quite characteristic. The otitis externa is marked by a high grade of inflammation, and in both the osseous and cartilaginous portions of the canal a hemorrhagic or fibrinous exudate may form, or bullæ, of varying sizes and filled with hemorrhagic contents, develop early.

The same hemorrhagic blebs are also found on the membrana tympani, either accompanied by the dermatitis of the external canal, or independently of it; and when situated on the former site, they may constitute a true hemorrhagic myringitis. If uncomplicated with an effusion into the middle ear, there is considerable pain, but this is not as severe as when an otitis is present; nor is the impairment of hearing as great as in the latter affection. This form of myringitis is characteristic of the grippe and its peculiar features are readily recognized by the appearance on the membrana tympani of ecchymoses varying in size and extent; or small hematomata may develop, either in the dermal tissue of the drum, or, more frequently, among its various constituent layers. More frequently, however, the membrana tympani becomes very much injected, and scattered over it are several blisters filled with blood. These rupture in from a few hours to one or two days, when, if the middle ear is not coincidentally involved, or the degree of myringitis is not excessive, the inflammation rapidly undergoes resolution, although considerable pain in the ear may remain for several days longer. The bullæ are usually situated on the posterior superior segment of the membrana and either perforate into the external canal, or not infrequently into the middle ear through the tympanic membrane. The perforation is located at the site mentioned, or occasionally it may be situated in front of the handle of the malleus. When perforation of the membrana tympani occurs in this manner, a superadded purulent infection takes place, but in the majority of such cases the drum membrane is not involved alone, but its inflammation is a part of the acute otitis media so frequently present.

From its anatomical relations to the nasopharynx, with its continuous mucous membrane lining, it is plainly apparent that the middle ear, with its attic and antrum, is more frequently involved as a result of grippe than is any other portion of the auditory apparatus; and it is here that the most harmful effects of this disease are encountered, from mild cases of simple catarrhal otitis, to suppurative changes, often with involvement of the mastoid process and destruction of the osseous structures.

According to Moos, the grippal inflammations of the middle ear may be divided into four distinct groups, the first two varieties not being in any way distinctive, but often found accompanying this disease, while the latter two have characteristic symptoms that are unmistakable. The first variety presents the symptoms of an ordinary acute non-suppurative otitis media, with swelling and hypertrophy of the lining mucous membrane of the tympanic cavity, especially of that portion inferior to the attic; examination shows little or no interference with the hearing. In the second variety, there is pain deep in the ear, with a moderate rise in temperature; the membrana tympani presents a diffuse redness, with the development of a sero-mucoid exudation into the cavum tympani, which at a later period may or may not become muco-purulent. The third variety characteristic of this disease, not as frequently seen now as it was some years ago, is rarely observed in any other affection than grippe and is the typical form of middle ear disease in this affection. It is the hemorrhagic otitis media. Bright red to deep blue colored bullæ form on the membrana tympani, as described when speaking of this variety of myringitis, and these may be accompanied with the development of similar vesicles in the osseous external canal. Accompanying these local phenomena, there is great pain in and about the ear, a considerable rise of temperature and often a high degree of deafness. The fourth variety is characterized by violent purulent inflammation of all parts of the middle ear, often involving the mastoid process; there is great distress, high fever and considerable prostration.

The onset of grippal otitis is usually sudden and excessively acute symptoms occur at a very early stage of the inflammation, so that often within a day of the onset in those cases where there is hemorrhage into the membrana, a discharge of a serosanguineous fluid is found, rapidly becoming purulent. Indeed an otitis media terminating in suppuration is the most frequent affection of the ear found in this disease. The intense hyperemia of the

tympanic mucosa, with the remarkable tendency to hemorrhagic effusions in these cases, undoubtedly causes the acute symptoms, of which the severe otalgia is the most prominent. In non-grippal suppuration of the middle ear, the persistence of pain after the pus has been evacuated is usually a symptom of further extension of the disease, and it is, therefore, often of grave import. In the grippal affection such is not the case as a rule; indeed, the pain usually persists for several days or even for a longer time, and yet the patient entirely recovers. The pain is also characterized by its constant severity and it is rarely localized directly in the ear, but frequently radiates over the head in a manner similar to a severe neuralgia. Not infrequently there is a definite aural neuralgia with hyperesthesia and tinnitus. The latter is often most distressing, occurs as a hammering or roaring, while it may also be complained of as an intense throbbing or beating. All of these forms of sensory disturbance have a marked tendency to continue for a more or less lengthy period after the inflammation has subsided.

Impairment of hearing is usually quite marked during the course of the suppuration, but usually the restoration to normal is complete a short time after the acute inflammation has subsided, or at any rate, when the suppuration has entirely disappeared; but not infrequently varying degrees of impairment remain, either from serious changes in the midddle ear, or from some involvement of the labyrinth. Should the deafness be extreme, however, during the course of the grippe, it undoubtedly adds to the gravity of the case from this aspect. In such instances the restoration of hearing is rather doubtful, and either slight or complete deafness may remain permanently.

As regards the suppuration, it is often more protracted than that of a simple purulent otitis media and it seems to present a greater tendency to become chronic. Occasionally it is possible to discover the bacillus of influenza in the pus during the early stage; but as secondary infection with the usual pus organisms takes place almost from the onset, the finding of the specific organism is of little diagnostic value, especially as the general symptoms of the disease are so marked that the relation between it and the aural affection is always readily recognized. The ultimate results of these cases of otitis occurring with or following grippe, is usually a restoration of the involved ear to the normal, and even with virulent infections of the middle ear cavity, the prognosis is decidedly better than in the otitis occurring in many other infectious diseases.

While, as stated, the majority of cases of grippal otitis entirely recover, yet a larger proportion than in simple suppurative otitis suffer from an extension of the purulent inflammation, with the development of mastoiditis; while in some epidemics there is a tendency to caries and necrosis of the petrous bone. In the mastoiditis of grippe rapid destruction of bone is the rule and all the symptoms are exaggerated. The pain and tenderness which, in the non-grippal cases are usually marked in the mastoid process itself, especially at the tip or base, are in the mastoiditis of grippe usually referred over the entire side of the head or, if localized, they are most marked at the point of junction between the temporal and occipital bones behind the mastoid process. The pain is nearly always markedly neuralgic.

Finally, one finds the internal ear but rarely involved in this affection, but there may be sudden and complete deafness due to a panotitis, while in those cases of marked deafness where the middle ear changes are not sufficient to cause it, the labyrinth or auditory nerve is usually involved. A peripheral neuritis of the auditory nerve may rarely be observed, followed by atrophy of its fibers. In such cases there will be found an interference with the perception for the middle notes of the musical scale, while the tone limits remain normal. The bone conduction is greatly diminished.

45 EAST SIXTIETH STREET.

LATERAL SINUS THROMBOSIS.

"Infective thrombosis of the lateral sinus is, like appendicitis, and in the same sense, a recently-discovered affection. The text-books of twenty years ago contained no allusion to it. One of the standard works of ten years ago refers to the fact that such a complication may arise in the course of mastoiditis, and that there is a possibility of removing the clot by operaton, but advises great caution, and gives evidence of the author's respect for so large a blood-vessel. Zaufal, in 1880, was the first to suggest deliberate exposure of the sinus for removal of an infected clot, and four years later he had the first opportunity to perform the operation he had recommended. The first operative case recorded in the transactions of the American Otological Society was related by Dr. Sutphen in 1892. Since that date there has been a rapid growth in the literature upon this subject and an annually increasing number of cases reported as successfully operated upon, and to-day the question is not upon the advisability of operating, but how early can the disease be recognized and how thorough shall be the operative measures."—H. O. Reik in the *Maryland Medical Journal.*

CESAREAN SECTION; WITH REPORT OF A CASE.*

BY JAMES S. BROWN, M.D.,

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The operation of Cesarean section, while of the most ancient lineage and sanction, and possessing the unique advantage of saving from death two human lives, if opportunely and correctly performed, has been allowed to fall into a state of practical disuse by the obstetricans and surgeons of New Hampshire. I have made many inquires amongst the physicians of the State, and have been able to learn of the following cases only:

About thirty years ago, Dr. Hersey, of Manchester, operated, saving the mother; but the child died, or was dead at the time of operation.

Some time later Dr. Grove, of Whitefield, had a case in which the child survived but the mother died.

The next case of which I find record, occurred in Manchester. The woman was septic and had an extremely contracted pelvis. The child was extracted dead and the mother died of peritonitis.

My own case occurred about three years ago, and both mother and child are living and well.

Dr. Gile has performed this operation twice, once in New Hampshire and once in Vermont. The operation in New Hampshire occurred about one year ago, and both mother and child are alive and well.

Drs. Beaton and Drake, of Franklin, had one case, equally successful, at about the same time.

The statistics thus far quoted are very unfavorable, and would naturally condemn the operation unless analyzed more carefully.

The majority of the above-mentioned operations were performed in the pre-aseptic era; and as a last resort after forceps and version, etc., had been repeatedly tried ineffectually.

Cesarean section must not be used in the same way as a drowning man clutches at a straw; if possible, the physician ought to know that the labor is to be extraordinarily difficult, and then, if necessary, undertake Cesarean section in a manner carefully arranged beforehand.

It is my belief that a large number of women and children die or are severely mutilated each year on account of the fact that difficult or impossible procedures are adopted in place of Cesarean section.

It is to be advocated in proper cases, which are far more numerous than is usually supposed, upon several grounds:

1. As a life-saving measure for both mother and child.

2. For religious consideration, as the Catholic church absolutely forbids the sacrificing of the life of an unbaptized infant for any reasons whatever, even to save the life of the mother.

3. For sentimental reasons, in that it avoids the repugnant spectacle of the mutilation and destruction of a living child.

4. For the very practical reasons that it saves the mother all the pain and danger of a long labor, as she merely takes ether, and in twenty or thirty minutes of unconsciousness, the labor is completed.

The mortality to-day in ordinarily good hands is five per cent., and in the best hands it is much lower. The operation may be performed at the operator's convenience, and in any house where ordinary surgical cleanliness may be made to prevail. Cesarean section has been too long held up as a bogey by the medical profession; if practiced with forethought and careful attention to a few rules, it is an extremely successful and easy operation.

The history of this ancient operation is very interesting. It derives its name from Julius Caesar, who was supposed to have been delivered in this way; but the fact is that he entered this world by the same route by which most people come. The first mention of this operation in medical literature occurs in 1581, when François Rousset collected the records of fourteen successful cases; but upon hearsay testimony the earliest successful case was that of Trautman, in 1610. The child lived, but the mother died three weeks later of embolism. The earlier mortality was extreme. In 1888 there were reports of 153 cases in the United States, with a maternal mortality of 63 per cent. In 1873, in the Paris Lying-In Hospital, there had been fifty cases in the previous eighty years, with no maternal recoveries. In contrast to these results obtained in the pre-aseptic era, and in the days when lying-in hospitals were loaded with pyogenic bacteria, it is interesting to note that in the United States, in 1887, there were collected nine cases of women at or near term, who were gored by bulls and the uterus opened, of whom four mothers and four children recovered; and of six cases of women who insanely opened their own wombs by Cesarean section, five recovered.

Indications.—The indications for this operation will naturally be divided into two groups by the decision as to the existence of a living or a dead child. In the latter case the only indication is the impossibility of any other mode of delivery. If the child is living and there exists grave doubt as to the possibility of the birth of a living child through the

* Read before the New Hampshire Medical Society.

natural passages, the balance of judgment should lean to the performance of section, although, of course, no harm can ensue if labor is allowed to progress for a reasonable length of time to see whether nature can overcome the difficulty.

As far as the measurements of the maternal pelvis are concerned, usually only the antero-posterior need be considered. If in measuring by the forefinger from the notch below the symphysis to the promontory of the sacrum the length is found to be 9 cm. or less, Cesarean section is the operation of choice, although as above stated, in doubtful cases labor may be allowed to proceed to see what nature may accomplish. And, on the other hand, in pelves of that measurement or even above, the history of very difficult previous labors may determine that section ought to be performed. The above clause is very important because it is in just these doubtful cases that the most damage is done by a temporizing or waiting policy. Many a woman who after thirty-six or forty-eight hours' labor and agonizing pain, could give birth to a dead, deformed or idiotic child, perhaps, would far better be delivered by Cesarean section with a painless and short labor and the certainty of a living and undeformed child.

Another indication is the presence of a tumor of sufficient size to obstruct labor in the lower uterine segment, which cannot be pushed above the brim of the pelvis. In this case the Porro operation of hysterectomy would, of course, be indicated. In case of rupture of the uterus with escape of the child into the abdominal cavity, Cesarean section ought of course to be performed, but I might add it should be done before any such calamity has been allowed to take place. In certain cases of cicatricial contraction of the vagina it is also the operation of choice, but it is extremely rare that such a condition would render the operation advisable.

Time.—The operation is best performed at term as nearly as that can be calculated, but to suit the operator's convenience labor may be started by the insertion of a bougie into the uterus. The presence of a dilated cervix and unruptured membranes is an advantage, but not a necessity.

Preparations.—Shave the parts and scrub well with soap and water and sublimate solution 1/1000. If there is time, give a cathartic and follow this by an enema; otherwise, give the enema only.

Provide:

12 large sterile gauze sponges,
12 sterile towels,
12 hemostats,
1 knife,
1 pair of scissors,
1 needle-holder and needle,
1 mouse-tooth forceps,
20-day chromicized catgut,
Fine silk.

I give a complete and itemized list of the instruments for this operation because it is getting to be the fashion for many operators to get out an unwieldy and unnecessary array of instruments and other accessories for surgical operations.

The position of the patient should be flat on the table with knees flexed over the foot of the table.

Assistants.—The etherizer.

One physician to perform the usual duties of surgical assistant.

A second assistant to stand at the foot of the table facing the pelvis of the mother and as soon as the abdomen is fully opened to grasp the uterine and ovarian arteries and to hold and compress them sufficiently to shut off the uterine blood supply until the operation is completed. At term these arteries run by the sides of the uterus nearly vertically in the broad ligaments and with surprising ease they may be held and the bleeding almost entirely controlled.

One other assistant is needed to take charge of the child and resuscitate it, if necessary.

In the performance of the operation no special surgical dexterity is needed, but it is advisable to exercise a little forethought as to the successive steps of the procedure, so that each may be undertaken in its logical order, for in no surgical operation is it more important that no time be wasted.

Technic.—Cut deliberately from one-third above to two-thirds below and to the left of the navel. Be careful not to incise the uterus in the first cut. It lies surprisingly near the parietes. The second assistant then grasps the arteries and controls the uterine blood supply. Incise the uterus longitudinally from the fundus to the white line, indicating the reflection of the bladder peritoneum. Make this incision long enough for the head to come out easily. Cut slowly through the uterine tissue and if the placental villi come into the wound do not cut the placenta, but separate it from the uterine wall with the finger. Grasp the child by the foot always, never by the hand, as that would make a shoulder presentation. If the head is impacted in the pelvis, have the third assistant push up upon it through the vagina.

When the child is delivered clamp the cord in two places and cut between to save time. Have the nurse give the mother two hypodermatic injections of ergotole. Massage the uterus for a minute, and in the meantime squeeze off the placenta if necessary

and take away the membranes. Separate all the membranes you can quickly, but do not waste too many minutes over small pieces. If the uterus is septic, enlarge the abdominal incision and deliver the womb before incising it; if not, have the assistant press the abdomen closely to the uterine walls.

The principal consideration in the performance of this operation is the control of hemorrhage. In regard to this matter, we must remember that the parturient woman loses in a perfectly normal labor about one pint of blood and is none the worse therefor, and that she can, during the birth of a child, lose much greater amounts of blood with safety than at any other time or in any other way. Granting that this be so, it is nonetheless necessary that we should lessen the hemorrhage to the utmost. The pregnant uterus and its contents are so extremely vascular that an astounding flow of blood may occur, especially if the placental sinuses are cut into and if the arteries are not properly controlled by the assistant whose sole duty is to attend to this matter and this alone. This assistant should grasp both broad ligaments low down and closely enough to catch each uterine artery between the fingers and thumb.

After the delivery of the child, placenta and membranes, the uterus should be kneaded for a moment to stimulate contraction, and then the sutures (which are the prime hemostatics), are rapidly introduced. Two layers should be used, one of 20-day chromicized catgut to include the whole thickness of the uterine wall, and a second layer of fine silk Lembert sutures which turn in the peritoneum over the incision. The peritoneum is then cleansed of blood clots, the omentum is brought down behind the uterus and the abdominal wall is sutured in any way that suits the individual operator best. The operation should be performed quickly but not hastily, and this result is best attained by a careful forethought as to the sequence of each step from beginning to end. Usually twenty or thirty minutes is enough time from start to finish.

The After-treatment with regard to nursing the baby and the diet of the mother are the same as after normal labor, except that the mother's diet should be restricted to small quantities of water for the first twenty-four hours. One daily vaginal douche of creolin is indicated, but intrauterine douches need not be given unless there is evidence of the retention and decomposition of membranes or clots, in which event the usual non-poisonous uterine injections may be employed.

I have had one personal case which, so far as I know, is the first case of Cesarean section successful for both mother and child that has occurred in New Hampshire.

Mrs. M. has been a patient of mine for about eight years. She came to me about six years ago and asked my advice as to whether she was physically able to marry, and after a somewhat hurried examination I told her she could do so. She had her first confinement four years ago, and was attended by two good practitioners who found it necessary, in order to effect delivery, to perform a podalic version, and then had to mutilate the head in order to extract the child. In the course of this operation Mrs. M. was badly torn. She had to go to a hospital for perineorrhaphy, but the stitches did not hold and the laceration still exists.

A little more than a year later she again became pregnant, and consulted me. I measured her pelvis, with the following results:

Transverse measurements, normal.

External conjugate, 19 cm., instead of 20.25.

Internal conjugate diagonal, 11 cm., instead of 12.5.

True conjugate, estimated 9 cm., instead of 11.25.

I advised her to have premature labor produced at eight and one-half months, but I heard nothing more from her until one night I was notified that she was in labor. I sent Dr. Milliken to attend her, and the labor proceeded for thirty-six hours without engagement of the head or rupture of the membranes, although there was full dilatation of the cervix. Dr. Milliken finally notified me that he believed labor *per vias naturales* was impossible. I had Mrs. M. taken to the Sacred Heart Hospital, and after about one hour's preparation we performed the operation.

We did not have the assistant who should have attended only to compressing the broad ligaments, and as the placenta lay under the uterine incision, and we were unfortunate enough to wound some of its sinuses, the hemorrhage was very excessive and even terrifying for a few moments, but it ceased upon the delivery of the child and separation of the placenta.

Convalescence of mother and child was normal, except that the mother had a slight rise of temperature for a few days, due to small pieces of membrane being left in the uterus. I gave her the following intrauterine douche daily as long as she had fever: Tincture of iodin, 1 ounce; potassium iodid, 1 dram; water, 3 quarts.

After four or five of these the temperature remained normal. She always nursed her baby after the first twenty-four hours. The child was a male, and had probably gone over term about two weeks. It weighed nine pounds, fourteen ounces, naked. It is in good health.

From the measurements of this woman's pelvis one would think that she could give birth to normal-sized babies by the natural way, although we would expect the labors to be very difficult, but her children have both been very large, and in addition there is probably some projection high up on the

posterior wall of the pelvis which prevents engagement, but which cannot be felt.

In comparing this operation with some others in which to a certain extent the same indications may prevail, we may say that in the merciful light of modern surgery symphysiotomy is obsolete, because it mutilates and cripples the mother without furnishing adequate advantages to the child. Craniotomy in the presence of a living child is often the cause of sepsis, and always a source of danger to the mother. It is murderous to the child, and is opposed by all religious, sentimental and psychical considerations of the physician's art and science.

The operation of Cesarean section is to be seriously considered in primiparæ whose pelves indicate great difficulty in spontaneous delivery, and in all multiparæ who have had extremely hard labors with dead, deformed or imbecile children. It is painless and quick for the mother; the child's life ought to be absolutely safe. From the standpoint of the surgeon, it has many advantages, in that it does not demand great technical skill, its performance is easy, and it may be done at a time selected by the surgeon, and, therefore, convenient to him and his assistants. The only prerequisites are that careful asepsis must be maintained in examinations of the woman and during the operation, and that all steps must be planned beforehand.

BLOOD EXAMINATION IN SURGICAL DIAGNOSIS. A PRACTICAL STUDY OF ITS SCOPE AND TECHNIC.

By IRA S. WILE, M.D.

NEW YORK CITY.

(Continued from the January Number.)

ESTIMATION OF RED CORPUSCLES

To enumerate the number of blood corpuscles, red or white, in each cubic millimeter of blood, a hemocytometer is employed. The simplest type is the Thoma-Zeiss apparatus. This instrument consists essentially of two parts: a capillary pipette for diluting and mixing the blood and a counting chamber.

For estimations of red corpuscles the pipette used has a graduated capillary bore in its lower part, widening out above into a bulbous chamber containing a glass head. The chamber continues into a wide bore neck. A rubber tube with mouthpiece is attached to the pipette. The graduation on the pipette is such that the capacity of the capillary tube up to mark 1 is just one one-hundredth of the capacity up to mark 101. The capillary tube is graduated in tenths, so that dilutions up to 1,000 are possible. The tip is made somewhat conical and smooth so that one may note the presence of air bubbles at once.

The counting chamber consists of a very heavy glass slide on which are cemented two glass plates. The outer plate is polished, square, of accurately measured thickness, with a hole about one cm.

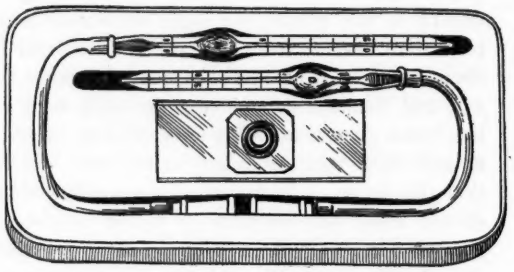

Fig. 6. Thoma-Zeiss blood diluting pipettes.

diameter in its center. Centrally placed in this hole is cemented the second glass plate, which is just 1/10 mm. thinner than the outer glass plate. The inner plate thus forms a sort of pier surrounded by a moat between the two plates. (Figure 7.) The pier constitutes a glass shelf just 1/10 mm. below the level of the outer glass. This central pier contains an area one mm. square, which is finely divided by intersecting lines into 400 small squares, each with an area of 1/400 square mm. Every fifth square is doubly ruled. (Figure 8.) The

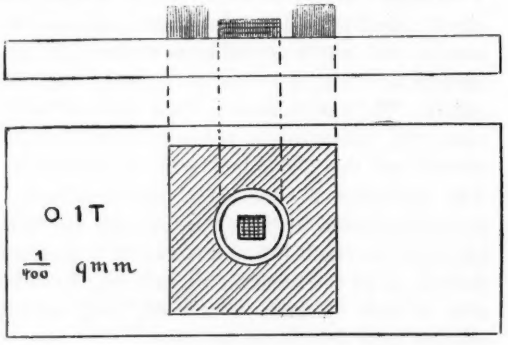

Fig. 7. Thoma-Zeiss counting chamber.

technic of making blood enumerations consists in securing the proper amount of blood, exactly diluting and carefully mixing it, filling the counting chamber, making the actual count and finally, by no means unimportant, cleansing the instruments.

As a diluting fluid for red corpuscles nothing is better than a three per cent. sodium chlorid solution, colored with gentian violet.

Technic.—Having punctured the finger, a good-sized drop of blood is allowed to flow without being forced out by undue pressure. The finger of the pa-

tient is steadied between the thumb and forefinger of the left hand. The tip of the diluting pipette is dipped into the blood drop. The hand holding the pipettte is steadied by resting at least the little finger on the left hand. The blood is slowly sucked into the pipette up to the mark 0.5 (in very anemic conditions to mark 1). The blood must not rise beyond the line to which it is supposed to be drawn. The tip of the pipette is quickly freed from adherent blood by means of a towel. The diluting fluid should be kept in a wide-mouthed bottle. When ready to make a count the bottle should be uncorked and ready for instant use. The proper amount of blood secured, the tip of the pipette is lowered into the diluting fluid. The salt solution

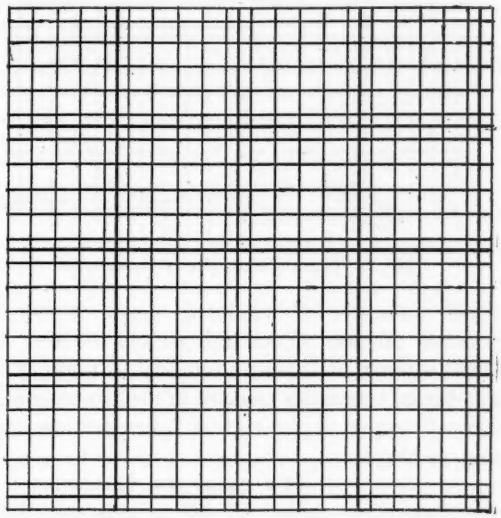

Fig. 8. Ruling of the center of Thoma-Zeiss counting chamber.

is slowly drawn into the pipette until the 101 mark is reached; while drawing the diluent into the chamber the pipette should be carefully rotated between thumb and fingers to facilitate mixing of the blood and the diluent at once without the formation of coagula and without allowing air bubbles to cling to the glass bead in the mixing chambers. As the chamber becomes almost full suction must be very light lest the fluid be drawn beyond the 101 mark. Having filled the pipette exactly to the 101 mark, remove the pipette from the diluting fluid and hold it horizontally so as to avoid any loss. Close both ends of the pipette with thumb and forefinger, catching the dangling rubber tube in the other fingers. Shake the pipette vigorously for about a minute to secure a thorough mixture. It is advisable to make the count at once. If this is impossible, remove the rubber tube and place a wide rubber band around the pipette so as to occlude both ends. Carry the pipette horizontally until ready to proceed with the counting. Before filling the counting chamber be sure it is perfectly clean and dry. Cleanse and polish the cover glass before using it.

Expel two or three drops of the thoroughly mixed solution from the pipette. Then carefully let a small drop flow into the center of the counting chamber. The proper size for the drop can be learned only by experience. It should be such that when the cover glass is placed upon it the fluid will exactly cover the central disk without overflowing into the moat. If the proper amount is on the disk Newton's rings (colors of the spectrum), will appear and remain between the cover

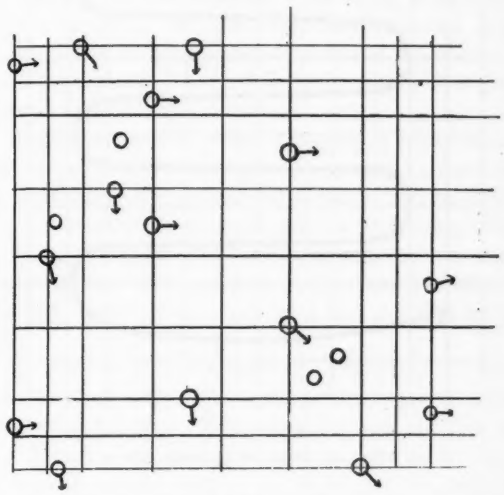

Fig. 9. Corpuscles touching the left and upper line are counted within the square.

glass and the glass disk. If the central disk is not completely covered the counting chamber must be cleaned and a fresh drop tried after re-shaking the pipette and throwing away a drop or two. The cover glass is to be carefully lowered onto the drop, not slid over it. The latter method may force part of the drop into the moat or between the cover glass and outer glass plate. Either of these errors requires that the work be repeated.

Newton's rings may often be gotten only by slight pressure on the cover glass near the edge but they are not absolutely necessary for accurate work.

The counting chamber, thus carefully filled, is placed upon the stage of the microscope. Counting is facilitated if a movable stage is used. A 1/6 Bausch and Lomb lens or No. 5 Leitz objective is used for counting.

The illumination of the field should not be very bright—artificial light is preferable to daylight. Permit the chamber to rest a minute before counting, to allow the corpuscles to sink upon the surface of the ruled area.

Focus carefully upon the left upper corner of the ruled squares. Beginning at the first small square count all the corpuscles, not alone those lying within the square, but also those touching the left side and upper line of each square. (Figure 9.) This will prevent counting the same corpuscle twice. Count thus the four small squares to the right. Then start

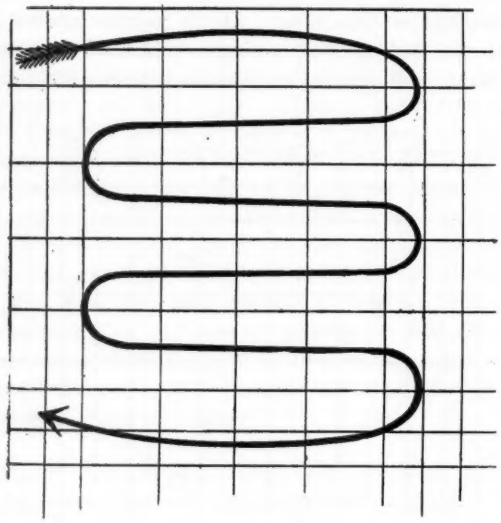

Fig. 10. Order of counting squares.

with the small square just below the fifth square and count the squares back until five are counted. (Figure 10.) Repeat this process until a block of twenty-five small squares is counted. Count four such blocks of twenty-five small squares making in all one hundred small squares. Take the large blocks diagonally across the field so as to allow for the variations in distribution of the corpuscles over the ruled area.

The number of corpuscles in one hundred small squares known, it is easy to compute the total number in a cubic millimeter. It is advisable to set down the number of corpuscles in each block of twenty-five small squares as counted. Let us assume that the

1st	block	of	25	small	squares	contained	153	corpuscles
2nd	"	"	"	"	"	"	149	"
3rd	"	"	"	"	"	"	155	"
4th	"	"	"	"	"	"	152	"
	100	small	squares			"	609	"
	Each	small	square			"	6.09	"

The chamber is one-tenth millimeter deep and each small square has an area of one four hundredth square millimeter. The number of corpuscles covering each small square represents, therefore, the number of corpuscles in one four thousandth cu. mm. Each cubic millimeter must contain, therefore, $6.09 \times 4000 = 24{,}360$ corpuscles. In the pipette the blood was drawn up to 0.5 and diluted to 101, *i.e.*, 200 times. Therefore, the number of corpuscles per cubic millimeter of the diluted blood must be multiplied by 200, — $24{,}360 \times 200 = 4{,}872{,}000$—to find the number of corpuscles in one

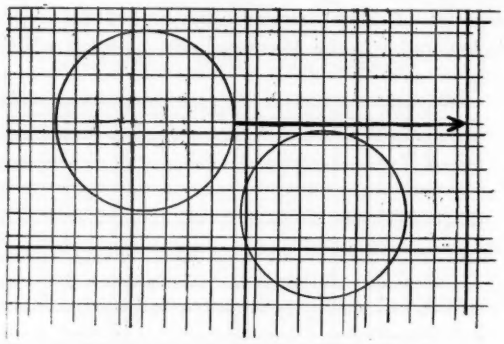

Fig. 11. Counting leucocytes by known areas.

cubic millimeter of undiluted blood. Using the constant dilution of 200 and always counting 100 small squares, it is only necessary to multiply the number of corpuscles counted in the 100 squares by 3,000 to arrive at the correct figure for one cubic mm. of blood.

ENUMERATION OF LEUCOCYTES

To count the leucocytes it is better to use a separate mixing pipette. This is graduated in tenths but the mixing chamber allows for dilution only to 100. The mark 11 is at the upper end of the mixing chamber. By drawing blood up to the 0.5 mark and the diluent to bring the fluid to the 11 mark, a dilution of one to twenty is secured. The diluting fluid should consist of 1/3% acetic acid. This dissolves the red corpuscles and swells up the leucocytes, making their nuclei especially prominent. Staining is not really necessary though gentian-violet may be added to stain the nuclei.

The technic of making the dilution and filling the counting chamber is just as in making the count of red corpuscles. The method of counting varies, however, as leucocytes are less numerous. In counting begin, as before, at the left upper corner. Count all the cells found in three rows of squares all the way across the field—not stopping at the confines of

one block. Count back to the starting line on the next lower three lines of small squares. Repeat this back and forth until the cells in all 400 small squares have been counted. The estimation of the leucocytes in one cubic millimeter of blood is similar to the method employed with red corpuscles, it being recalled that the dilution is only 20 instead of 200. If the total number of leucocytes in the 400 small squares be 56, the average content of each small square is 56/400 of a leucocyte. Each small square representing the leucocytes in 1/4000 cu. mm. of diluted blood, 1 cu. mm. would contain $56/400 \times 4000$. With a dilution of twenty times, the undiluted blood would be $56/400 \times 4000 \times 20 = 11{,}600$. Multiplying the number of leucocytes counted in the 400 small squares by 200 gives the number of leucocytes in one cubic millimeter of undiluted blood.

Another method of calculation is possible when the counting chamber can be adjusted so that the

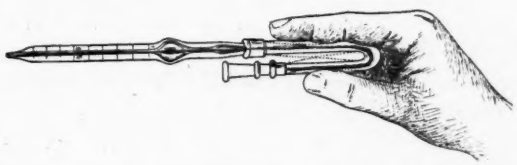

Fig. 12. Use of rubber tubing of pipette as a suction tube in cleansing pipette.

diameter of the microscopic field is traversed by eight small squares. (Figure 11.) The area of a circle $= \pi R^2$. The area of the field would, therefore, be $3.1416 \times (4)^2$ (½ diameter-radius) $= 50.2656$ squares. For all practical purposes this is 50 small squares. Having determined this area, it is only necessary to count 8 fields regardless of the rulings to have the number of cells in 400 small squares. This number multiplied by 200 gives the desired result. Counting by these methods gives an error of at least 5%, but it is negligible for surgical work.

The blood count made, the important feature of cleaning the pipette remains:—

First.—Expel the contents of the pipette as much as is possible.

Second.—Draw up distilled water to the diluting mark, shake thoroughly and expel.

Third.—Repeat, using alcohol.

Fourth.—Repeat, using ether.

Having expelled the ether, swing the pipette to and fro briskly and jerkily and finally suck air through the pipette until it is perfectly dry. When it is dry the glass bead rolls around freely and does not cling to the sides of the mixing chamber. The pipettes should be cleaned immediately after making the count so as to prevent evaporation of fluids with resultant coating on the pipette. The cleaning fluids may be sucked and blown out, but this takes too long. A small rubber bulb such as is used on a hand atomizer is very useful for this purpose. The rubber tube attached to the pipette forms an excellent suction apparatus. (Figure 12.) The rubber tube is bent double and squeezed with the hands to expel all the contained air. This forces the fluid out of the pipette. To refill the pipette with cleaning fluid, release the pressure on the rubber except at the very end next to the mouthpiece. This action draws the air from the pipette into the rubber tubing. A vacuum is thus formed in the pipette which is relieved by the cleaning fluid being drawn in. This process is repeated with water, alcohol and ether. The counting chamber should be washed with plain water—alcohol or ether may soften the cement and ruin the chamber.

Boggs has just described *(Journal of the American Medical Association,* January 5, 1907*)* a method of controlling the column of blood and diluent in the coarse capillary pipettes used in estimating leucocytes. (Figure 13.) His description of the "throttled capillary" adapted to the control of blood counting pipettes is so excellent that I quote it in full:

"It consists of a capillary tube "throttled" in the manner described by Wright, that is, heated in a very small flame and then quickly drawn out into a fine thread. The caliber of this tip must be so fine that when gentle suction is made the air comes through very slowly.

"The outer protecting tube is from 5 to 7 mm. in diameter and drawn out to an hour-glass shape. The large part of the capillary (a) is marked with a file so that it may be conveniently broken off after cementing in the holder. This latter is easily accomplished by molding a little sealing wax near the throttled end, passing the larger free end of the capillary first through the holder, and, after warming gently at the constricted part, drawing the waxed end down into the narrow waist of the tube. The wax softens and fills the constriction (c), and on cooling leaves the capillary firmly cemented in place. The ends should be about 5 mm. short of the open ends of the container. It is easy to break off this larger end of the capillary at the point marked, by using a fine forceps passed into the larger tube.

"With a little patience anyone can make the apparatus. A few trials may be necessary in order to

determine the fineness of the 'throttle.' This should be so arranged that, with gentle suction, the filling of the pipette is slow, while with stronger pressure one may rapidly draw in the mixing fluid.

"The device should be connected to the pipette with the fine point (b) toward the mouth end, as indicated in the drawing.

"In the subsequent washing of the pipette with water, alcohol and ether it is advisable to remove

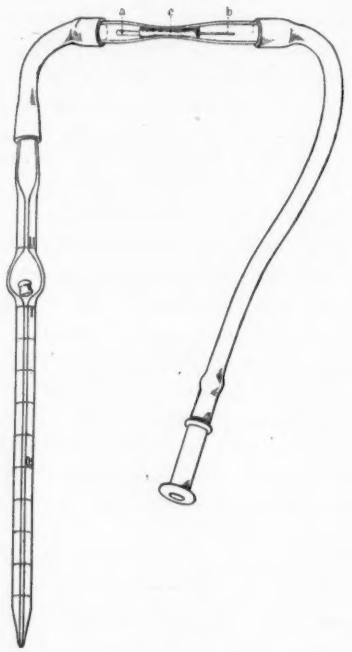

Fig. 13. Wright's "throttled capillary" adapted by Boggs for the control of blood counting pipettes. (By courtesy of the *Journal of the A. M. A.*)

the controlling device, as a drop of fluid drawn into the 'throttled' end will occlude it and render it useless.

"With this controller it is easy to draw the column of blood steadily and slowly to the point desired, and it also keeps the blood from falling from the pipette in transferring the tip to the bottle of diluting fluid."

(To be Continued.)

"THE MILITARY SURGEON."

With the first issue of this year the *Journal of the Association of Military Surgeons of the U. S.* changed its title to *The Military Surgeon.* A highly successful and dignified journal, it is fitting that this publication, the first of its kind in the English language, should assume the title which more comprehensively indicates its scope and purpose.

RÖNTGEN DIAGNOSIS OF RENAL CALCULI.*

BY G. H. STOVER, M.D.,

Lecturer on Radiology and Electro-Therapy, Denver and Gross Medical College; Radiologist to St. Joseph's Hospital, St. Anthony's Hospital, and the County Hospital,

DENVER, COLO.

One of the most interesting and at the same time, most difficult, fields in Röntgen diagnosis lies in the examination of the kidney for calculus. For a long time there was much doubt as to the capacity of the Röntgen ray to afford evidence of accuracy and reliability, but as time has passed, it has been found that the evidences of skiagraphy are to be depended upon. All renal stones are sufficiently opaque to the Röntgen ray to be detected by means of it. So few stones are composed of but one substance that it would be practically unheard of to find one made up solely of a substance quite transparent to this light.

The classical signs of renal calculus, namely: the characteristic pain, pus in the urine, blood in the urine, are not absolute evidences that a stone is present. On the other hand, in most of the cases which have come under my observation in which a stone was present, the classical symptoms were also always present.

The value of a positive diagnosis by the Röntgen ray is disputed by very few at this time, I think. The value of the negative x-ray diagnosis, in the face of strong clinical evidence, is not so well acknowledged, but as surgeons acquire more experience in the matter (and particularly when the work is done by a competent radiologist), a negative diagnosis will be given more weight.

I here present a table showing practically all of the work I have done in this branch of skiagraphy, and I think the facts shown are sufficient to speak for the usefulness of the Röntgen ray in the diagnosis of renal calculus.

No case in which the Röntgen diagnosis was negative, and in which no operation was done, has either passed a stone or had further syptoms which would lead one to believe that any error had been made.

In thirteen instances in which the diagnosis was negative, and an operation was done upon the kidney, no stone was found when the organ was opened and searched. The symptoms from which the patients suffered were due to a variety of diseases, from cancer to movable kidney. Of the four examples of movable kidney, all had characteristic

* Read before the Colorado State Medical Society, October, 1906.

No.	Referred by Dr.	Previously passed stone.	Characteristic pain.	Pus in urine.	Blood in urine.	Skiagraphic diagnosis.	Operated upon.	Remarks.
2000	E. J. A. Rogers.....	No	Yes	No	No	Neg.	No	Symptoms disappeared.
2490	L. T. Durbin.....	Sand	Yes	No	No	Neg.	No	Symptoms disappeared.
2597	G. R. Feil.....	Yes	No	No	Yes	Pos.	No	To be operated soon.
1552	T. J. Cailin.....	....	Yes	No	No	Neg.	No	
1298	W. H. Heisen.....	No	Yes	No	Yes	Neg.	No	Still vague pain at times.
1414	W. B. Craig.....	....	....	....	....	Neg.	No	Lost sight of.
1825	W. F. Church.....	No	Yes	Yes	Yes	In ureter	No	Tubercle bacilli have appeared in urine.
2011	J. N. Hall.....	No	Yes	Yes	Yes	Neg.	No	Occasional pain still.
1851	E. P. Hershey.....	No	Yes	Yes	Yes	Neg.	No	Symptoms disappeared.
1537	F. E. Waxham.....	No	Yes	Yes	No	Neg.	No	Lost sight of.
2061	W. B. Craig.....	Yes	Yes	Yes	Yes	Neg.	No	Lost sight of.
2200	S. T. Brown.....	....	....	....	....	Neg.	No	Lost sight of.
2254	S. D. Van Meter.....	No	Yes	Yes	Yes	Neg.	No	Tubercle bacilli in urine.
1476	G. R. Feil.....	No	Yes	Yes	Yes	Neg.	No	Stone was in bladder.
1338	E. P. Hershey.....	Yes	Yes	No	Yes	Neg.	No	Symptoms disappeared.
1485	G. N. Macomber.....	No	Yes	Yes	Yes	Neg.	No	Symptoms disappeared.
1406	L. Freeman.....	No	Yes	Yes	Yes	Neg.	No	Symptoms disappeared.
1522	.....	No	Yes	Yes	Yes	Neg.	No	Symptoms disappeared.
1673	E. F. Dean.....	No	Yes	No	No	Neg.	No	Symptoms relieved.
2218	J. R. Hopkins.....	No	Yes	No	Yes	Neg.	No	Symptoms disappeared.
2297	M. R. Root.....	No	Vague	No	No	Neg.	No	Condition unchanged.
2476	J. Elsner	No	Yes	Yes	Yes	Neg.	No	Symptoms disappeared.
1432	F. H. McNaught.....	No	Yes	....	Yes	Neg.	No	
2129	E. C. Hill.....	No	Yes	No	Yes	Neg.	Yes	Cancer of kidney found.
1208	W. N. Grant.....	No	Yes	....	....	Neg.	Yes	Adenoma of kidney found.
1256B	M. Kleiner	No	Yes	Yes	Yes	Neg.	Yes	Hemorrhagic kidney found.
1503	L. Freeman	No	Yes	No	Yes	Neg.	Yes	Movable kidney found.
1283	L. Freeman	No	Yes	No	Yes	Neg.	Yes	Interstitial nephritis found.
1300	L. Freeman	Yes	Yes	Yes	Yes	Neg.	Yes	Movable kidney found.
1443	L. Freeman	No	Yes	No	No	Neg.	Yes	Movable kidney found.
1479	L. Freeman	No	Yes	No	Yes	Neg.	Yes	Interstitial nephritis found.
1346	L. Freeman	No	Yes	Yes	Yes	Neg.	Yes	Tubercular kidney found.
1295	S. D. Van Meter.....	No	Yes	No	No	Neg.	Yes	Floating kidney found.
2588	L. Freeman	Yes	Yes	Yes	Yes	Neg.	Yes	Hydronephrosis and necrosis found.
1701	C. B. Van Zant.....	....	Yes	Yes	Yes	Neg.	Yes	Tubercular kidney found.
1209	W. E. Edmunson.....	....	....	....	....	Neg.	Yes	No stone found.
2235	S. T. Brown.....	No	Yes	Yes	Yes	Pos.	Yes	Many stones found.
2526	J. W. Harris.....	Yes	Yes	Yes	Yes	Pos.	Yes	Stone found.
1467	L. Freeman	No	Yes	Yes	Yes	Pos.	Yes	Stone found.
1907	P. V. Carlin.....	No	Yes	Yes	Yes	Pos.	Yes	Stone found.
1434	S. D. Van Meter.....	No	Yes	No	Yes	Pos.	No	Passed stone.
2644	J. Boice	No	Yes	Yes	Yes	Pos.	Yes	Palpated before incision, but not found.*
2657	L. Freeman	Yes	Yes	Yes	Yes	Pos.	No	Passed cystic stone later.
2674	Seebass & Craig.....	No	Yes	Yes	Yes	Pos.	Yes	Large stone removed.

* See text.

pain; two had blood in the urine; one had pus in the urine; one had both pus and blood in the urine.

Of the eight cases in which a positive diagnosis was made, six were operated upon and the diagnosis confirmed; in the other two the stones were passed by the patients, thus avoiding an operation. One of these was a very small stone of pure cystin; a few days before the examination the patient had passed a large cystin stone. In one of the cases in which a positive diagnosis was made, and in which the shadow of the stone was quite distinct, but the outlines not strong, I stated that it was probably a soft stone. While handling the kidney the operator was able to feel the stone distinctly; later when the kidney was opened the stone could not be found, and the operator stated that he had undoubtedly crushed it. The first urine from the patient was saved, and in it was found the débris of the stone.

It is now pretty generally recognized that no operation should be done upon the kidney until a skiagraphic examination has been made. This of course does not include the emergency cases, in which immediate operation is needed on account of a stab wound, gunshot would or rupture of the kidney from traumatism. In some instances there is more than one stone present, and it would be well for the operator to know this, otherwise he might discontinue his work after removing the first stone found in the operation. Again, there could be instances in which operative measures were to be undertaken for other causes than stone, and the stone might be overlooked if a skiagram had not shown its presence.

I have at hand no statistics to quote, but I am of the opinion that it would be well if many of the cases at present diagnosed as chronic appendicitis

and oöphoritis were given the benefit of a Röntgen examination of the kidney.

Finally, the value of a kidney skiagram depends wholly upon the skill and experience of the radiologist. No one but an expert can make these examinations properly; there are very few men in the United States to-day who can do it. And after the skiagram has been made, its interpretation must also be made by one who is competent. There are many sources of error. There may be shadows due to fecal matter, or to buttons, or to phleboliths, or to defects in the plate used, and the radiologist must be able to recognize all these. I remember a patient who presented herself to Dr. W. B. Craig for operation for the removal of a renal calculus; she had with her the skiagram made by her physician, and a note from him stating that the patient had a large stone with many sharp spicules upon it. The doctor declined to operate until I had seen the skiagram; I found a beautiful black spot on the negative, with a dozen sharp points radiating from it. This was due to the fact that there had been a small hole in the light-proof envelopes in which the plate had been placed to make the exposure; the daylight came through this hole, acting on the film at that point. The shadow of a calculus would have been white. The only white shadow on the negative in that region was the image of the end of a transverse process of one of the vertebræ. The patient was not operated upon.

To Determine the Presence of Stones in the Gall-Bladder.

Outline the free border of the liver and locate the notch. As a rule this will be found at or near the right linea semilunaris. Place the palm of the hand on the abdominal wall, with the tips of the fingers pointing toward the patient's head. Then gently press in and upward, pushing the abdominal wall under the free border of the liver, so that the tips of the fingers are below the liver border. Then get the patient to laugh or cough. If the gall-bladder is not contracted it will strike against the tips of the fingers, and if there are many gall-stones present it is more than likely that we will be able to feel the clicking of the stones against one another. —Samuel Lloyd, in the *N. Y. Medical Journal.*

Breast Tumors.

Four out of five of tumors of the breast, at all ages, are malignant; one-half of the balance will become malignant.—W. J. Mayo in the *Canada Lancet.*

SULPHATE OF SPARTEIN IN SURGICAL PRACTICE.*

By Stuart McGuire, M.D.,
Surgeon in Charge, St. Luke's Hospital,
RICHMOND, VA.

Like most surgeons I devote little time to the study of the therapeutic action of drugs. Patients who are referred to me have usually exhausted the resources of materia medica, and in my practice I rarely have occasion to employ medicinal agents other than the well-known anesthetics, antiseptics, purgatives and tonics. I believe, however, I have accidentally discovered in sulphate of spartein a valuable remedy for the prevention and treatment of post-operative suppression of urine.

I do not know whether or not my experience coincides with that of other surgeons, but it is a fact that in the last five years I have lost more cases from post-operative suppression of urine than from all other causes combined, and this despite the almost routine use of chloroform as an anesthetic.

The cases have usually been those with pre-existing nephritis from sepsis or cholemia. Shock has not apparently been a factor, for the condition would not develop for twenty-four or thirty-six hours. A patient operated upon for retention of urine, or for jaundice due to obstruction of the common duct, would do well for one or two days and just as he was thought to be out of danger there would come the news that he was passing no urine. He would become restless, then listless, would develop a stupor which would rapidly deepen into coma, and would die with all the symptoms characteristic of uremia. In the treatment of this condition I tried water by mouth, under the skin and in the rectum; hot packs and vapor baths; cups and counter-irritants; strychnia, digitalis and nitroglycerin; calomel and saline purgatives; and in one case stripping the kidney capsules, with uniformly bad results.

Two years ago I began empirically the use of sulphate of spartein and I now have the record of six cases in which I am sure the drug was the means of saving the patient's life.

I will not occupy the time of the Association by reading a dissertation on spartein which I would, of course, have to copy from a text-book. Its therapeutic effect is to increase the blood pressure, make the pulse slower and stronger, and act as a powerful diuretic. Its action is manifest in thirty minutes after administration and lasts for four to six hours.

* Read before the Southern Surgical and Gynecological Association, December, 1906.

I believe the reason why the value of sulphate of spartein is not more widely recognized is because authorities advise its use in doses so small as to be worthless. To get results it must be given hypodermatically in doses of from one to two grains, repeated every three to six hours. When so employed I have repeatedly seen it pull up a run-a-way heart and set in motion a pair of stalled kidneys. Its use should not be delayed until suppression of urine is already in existence, but it should be prescribed as a prophylactic as well as a curative agent.

I do not mean to claim that it is a specific, or that it should be employed to the exclusion of other measures, such as purgatives, transfusions, and hot packs. I do believe, however, from actual experience, that it is preferable to the drugs of the digitalis type in rapidity of action, ease of administration and, what is more important—results.

TRANSPLANTATION OF THE ROUND LIGAMENTS THROUGH A MEDIAN INCISION, THE BEST OPERATION FOR RETROVERSION.

By EMORY LANPHEAR, M.D.,

Formerly Professor of Operative Surgery in the Kansas City Medical College and Professor of Surgery in the St. Louis College of Physicians and Surgeons,

ST. LOUIS.

I am so often asked the question: "What is the best operation for retroversion?" that I desire to describe that which I have found most satisfactory after many years of experimentation with practically every kind of measure recommended.

The *advantages* of this operation are:

1. Ease of performance;

2. Safety—if done with clean hands;

3. Perfect, permanent retention of the uterus and adnexa in natural position;

4. Non-interference with pregnancy.

Technic.—After careful preparation, as for any other abdominal section, the skin is incised in the median line from two inches above the pubes upward not to exceed one inch,—just enough to permit the index-finger to be introduced easily. Dissection is made to the peritoneum which is to be caught between two hemostats and then opened.

The index finger of the left hand (working from the right side of the patient), is thrust down into the pelvis, the omentum being pushed upward out of the way, and the fundus uteri found. As soon as it is located the finger is to be slipped over behind it and behind the left tube, which (usually) can be brought up into the wound quite easily; it is well to deliver the fimbriated end of the tube and bring the ovary well up into view to allow inspection and correction of any trouble found. Directly in front of the tube the uterine end of the round ligament is found readily, and as it is caught and drawn through the wound the tube and ovary are allowed to slip back into the pelvis.

Traction is now made on the round ligament until it is taut; then as near its entrance to the canal of Nuck as is convenient, a No. 2 plain catgut ligature is passed around it and tied; a hemostat is placed on the ligament about a half-inch nearer the uterus; and then the ligament is cut across and the outer end pushed back into the pelvis. This leaves two or three inches of round ligament exposed: one end attached to the uterus, the other in the hemostatic forceps. A piece of gauze is wrapped around this and it is laid aside temporarily.

The finger is again introduced into the pelvis and the opposite tube, ovary and round ligament are treated in the same manner.

When both round ligaments have thus been tied and exposed, for the third time the left index finger is forced through the cut, and turned to the left until it is well under the rectus muscle. A sharp-pointed hemostat is then passed into the wound and thrust directly through the body of the rectus and the peritoneum, at least an inch to the left of the incision, guided by the finger within; when well within the belly it is gently opened and made to grasp the round ligament at some convenient place between uterus and retaining hemostat. Then, as the round ligament is drawn through the peritoneal slit and the little hole in the rectus made by the passage of the hemostat, the clamp on the outer end is taken off and thus the liberated end is allowed to pass through, when it may be caught again in the clamp. The opposite side is similarly treated.

When both round ligaments have been properly passed, traction is to be made until the fundus is seen to closely approach, but not come in contact with, the parietal peritoneum. This is the desired position; so at once the round ligaments are stitched into the rectus muscle by two No. 2 ten-day, chromic catgut sutures on each side.

Next the peritoneum is closed by one or two plain catgut stitches.

Then any redundancy of the round ligaments is cut away and the two ends are sewn together with two chromic gut stitches. The sheath of the rectus is pulled over them, and held in place by one or two plain catgut sutures.

Finally two silk-worm gut sutures are used to close the skin. The usual dressings are applied.

After-Treatment.—The skin-sutures are removed at the end of ten days, and the patient is allowed to sit up in two weeks. Straining should be avoided for four or six weeks.

I have never had recurrence of either retroversion or prolapsus treated in this manner, and I have been using the method for more than fifteen years: so I feel assured that—in my hands at least—it is "the best operation" for retroversion as well as for properly-selected cases of prolapse.

REPORT OF A CASE OF PERFORATION OF THE INTESTINE BY A MURPHY BUTTON AT A DISTANCE FROM THE ANASTOMOSIS; AND A BRIEF DISCUSSION ON THE USE OF THE BUTTON.*

By Eugene H. Pool, M.D.,
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NEW YORK.

The case here described was operated upon by Dr. W. T. Bull, and it is through his courtesy that I report it. It is one in which death resulted from perforation of the bowel by a Murphy button two months after a successful pylorectomy had been performed. It presents some interest as demonstrating an unusual sequel to the use of the button and in calling attention to a serious condition which, if recognized early, might be relieved by timely operative interference.

The patient was a woman, fifty-six years old, whose mother had died of cancer of the stomach. She had for years complained of indigestion but it was not until February, 1906, that definite gastric symptoms developed. At that time there occurred frequent attacks of vomiting of small amounts of undigested food. There was no blood in the vomitus at any time, nor was there any real pain. The patient experienced merely a feeling of discomfort in the epigastrium which in her opinion was due to the presence of gas in the stomach. The summary of several examinations of the gastric contents is as follows: hydrochloric acid present, lactic acid and butyric acid absent, Boas-Oppler bacilli absent, capacity of stomach 1,200 c.c.. There was palpable in the epigastrium a small nodule; otherwise there was nothing significant in the physical examination. It was said that the patient had lost no weight.

On March 30, 1906, a laparotomy was performed. The pylorus was found quite extensively involved by a hard growth. It was, however, freely movable. A piece of the tumor was removed by microscopic examination and a frozen section examined by Dr. F. C. Wood confirmed the diagnosis of carcinoma. An unusual anatomical feature was the presence of a hard node about one and one half centimeters in diameter almost in the center of the transverse mesocolon. It was removed, and examination of a frozen section showed it to be a carcinomatous deposit. Careful search, however, failed to disclose other nodes even in the lesser omentum. While the microscopic examinations were being made, gastro-enterostomy and entero-enterostomy were performed. Murphy buttons of the ordinary size were used, the one for the stomach being the variety provided with a flange, as suggested by Weir. This button was the cause of the subsequent trouble. Upon receiving the report of the frozen sections a pylorectomy was performed, following the technic recommended by Kocher.

Beyond a little vomiting and colicky pains for a few days, the recovery from the operation was uneventful. The intestinal button was passed on the twelfth day, and on the thirteenth day the patient sat up. After this she improved steadily and, with the exception of occasionally vomiting, experienced no untoward symptoms. Five weeks after operation she was sufficiently strong to drive for as much as two hours without fatigue.

On May 10th (41st day), the patient complained of sudden sharp abdominal pain, chiefly in the right iliac fossa. The onset of the pain was accompanied by a chill and vomiting. The temperature and pulse, which had been normal practically from the time of the operation, rose one and a half hours later to 100.6° and 104, respectively. The abdomen was slightly distended and there was later tenderness over the whole abdomen, more marked in the region of the appendix where there was slight rigidity. The blood examination at this time showed 9,500 leucocytes, polymorphonuclears 87%.

The distension, nausea and pain in the right side of the abdomen, which was for the most part dull but occasionally sharp in character, gradually disappeared in four days. During this time the temperature varied between 99.8° and 100.2°, and the pulse between 104 and 108. The bowels were moved daily by an enema.

From the onset of the attack it was assumed that the second button was the cause of the complication, and this view was strengthened by an x-ray plate which showed the button in the right iliac fossa. The advisability of operation was carefully weighed, but the patient's family was in favor of a conservative course.

On May 14th (the fifth day after the onset of the

* Read before the Surgical Section of the N. Y. Academy of Medicine.

above attack), the temperature did not rise above normal nor the pulse above 92; the patient felt well, had no abdominal distress and was able to sit up out of bed. During the next four days she experienced only occasionally nausea, vomiting and abdominal pains; the temperature ran between 99° and 99.4°, the pulse averaged about 100. On the next day, May 19th, she felt so well that she walked downstairs. This was at the end of the seventh week.

But on May 20th she again complained of chilliness, nausea, vomiting, and pain and tenderness in the lower part of the abdomen, but this time on the left side. The temperature rose to 101.6°, the pulse to 124. The blood examination showed 33,000 leucocytes, polymorphonuclears 93%. For the next three days she vomited frequently and continued to complain of the pain in the left side of abdomen, but no mass could be felt.

During this attack an exploratory operation seemed to offer hope of saving the patient. It was not done because she was extremely weak and prostrated. From this time the temperature ranged between 99.2° and 102.2° and was of a rather irregular septic type and the pulse ran between 103 and 124. On May 30th the patient suddenly collapsed and died.

Post-mortem examination explained the peculiar features of the clinical course. The cause of the first acute attack, which was referred to the region of the cecum became clear, as did the confusing attack which occurred later and was referred to the left iliac fossa. On opening the abdomen there was found in the lower part of the peritoneal cavity on the left side a well walled off cavity, about four inches in diameter, containing pus and fecal matter. This abscess lay low in the iliac fossa and at first there was no apparent connection between it and the bowel. Dissection, however, revealed a narrow tract leading from the abscess to the ileum two inches from the ileo-cecal junction, and at this point the wall of the bowel presented an opening through which protruded in part the second Murphy button. There was nothing abnormal in or around the ileum or ileo-colic valve to account for the arrest of the button. From these findings it is evident that the first attack occurred at the time of the perforation, and that the site was so well walled off that extravasation of feces and the extension of pus took place slowly for a time. With the second attack, referable to the left side, the abscess developed more rapidly. There were no carcinomatous deposits in any part of the body and the lines of suture and anastomoses were solidly united.

In connection with the above case it seems appropriate to discuss briefly perforations of the intestine by the Murphy button which take place at the site of the anastomosis as well as those which occur lower in the bowel.

Innumerable instances of perforation at the site of anastomosis have occurred, leading to the formation of fecal fistulæ or fatal peritonitis, and the records of such cases are frequently met in the perusal of the mass of literature on the subject of the Murphy button.

The causes of a perforation of this kind may be divided into two groups, those depending upon conditions over which the operator has no control, and those resulting from errors of technic. In the first class belongs the failure of the tissues to unite on account of imperfect regenerative powers, which frequently exists in profound cachexia, or on account of local conditions such as the presence of infection before operation. Among the errors of technic may be mentioned: imperfect approximation of the serous surfaces; failure to reinforce the anastomosis, where necessary, with Lembert sutures; improper union of the segments of the button; and the insertion of the button in tissues whose viability is subject to question, as in gangrene of the gut. Finally, accidents have occasionally occurred as the result of poorly made or corroded buttons which have broken apart in situ. Therefore, the manufacture and condition of the button are important, as was emphasized by Weir and Gelpke.

It seems to be the general belief among writers on this subject that most of these perforations are due to errors of technic and therefore could in many cases be avoided. The uniformly good results obtained by a careful operator bear out this view. This is shown by the statistics of all the cases in which a Murphy button was used in the private practice of Dr. W. T. Bull, from May, 1903, to date. There were in all ten cases. Two of these died soon after the operation from causes that could not be attributed in any way to the button. Therefore these must be excluded from the list. The case presented in this paper is also excluded. The remaining seven included one of ileo-colostomy, two of colo-colostomy, and four of gastro-enterostomy with entero-enterostomy. In each of the last four cases two buttons were used, making eleven buttons in the seven cases. All of these cases recovered from the operation without the formation of a fistula or the development of other complications. Two buttons were retained; one remained permanently in the stomach, the other was found seven weeks after the ileo-colostomy when a large carcinoma of the hepatic

flexure was successfully resected. The button lay in the resected intestine on the distal side of the neoplasm.

Perforation at a distance from the site of the anastomosis, in contrast to the preceding, is of rare occurrence. Banks, in 1895, wrote, "the *prima facie* objection that the button would stick somewhere on its journey downwards is answered by the fact that no such case has occurred." Even since that time few cases have been reported.

Mikulicz observed a case of intestinal resection in which the button ulcerated through the intestinal wall at a distance of three centimeters from the point of resection, and gave rise to fatal peritonitis.

Neuweiler cites a case of intestinal anastomosis following a resection where the button was found ten weeks after the operation in the cecum, which was considerably ulcerated. The patient, a woman, 69 years of age, had succumbed to hypostatic pneumonia.

Nehrkorm and Kaposi described a case in which a Murphy button, during its passage through the bowel, caused manifestations of intestinal stenosis with peritoneal irritation. It was removed by enterostomy.

Gelpke saw a case at the Liestal Hospital in which the button was found in the cecum four weeks after resection, the patient having died of pneumonia. This button had produced an ulcer which was ready to perforate.

Moynihan, in a case of traumatic rupture of the intestine at the duodeno-jejunal junction, closed the proximal end of the small bowel and implanted the end of the jejunum into the posterior wall of the stomach by means of a Murphy button. An anastomosis between duodenum and jejunum could not be performed on account of the serious condition of the patient. On the 104th day following the operation, the patient complained of sudden severe pain in the abdomen. The pain was followed by collapse, and the boy died at the end of a few hours. The autopsy showed a perforation of the duodenum near the place where it had been closed.

In reviewing these cases it will be seen that at times peristalsis is not effective in expelling a button lodged in the cecum, where it may remain and cause ulceration. Moreover, it is clear from Moynihan's case that if a button is held mechanically in one place it will produce an ulcer and perforation. But no record has been found of a case similar to the one here reported, in which a button, in the absence of any pathological condition which might diminish the lumen of the bowel, perforated the small intestine at a distance from the site of the anastomosis.

In the vast majority of cases the ordinary rounded button has been used. This is naturally less likely to be interrupted in its course than one of irregular shape and presenting projections. Suspicion then arises that in the case reported in this paper the variety of the button was the cause of the perforation. On account of the flanges of the Weir model, the button presents one relatively wide diameter. If this should become engaged in the transverse diameter of the small intestine it might easily be held there by the projection of the flanges into the mucous membrane on each side. If held long in this position ulceration and perforation would be inevitable.

Though this is only one failure in many successful cases in which this modification of the button has been used, the consideration of the case leads to the question whether the ordinary rounded button, as devised by Murphy, is not to be preferred in gastro-enterostomy, even if the likelihood of the button being retained in the stomach is thereby increased, especially as this lodgment of the button in the stomach does not seem to cause any serious complication. That perforation of the stomach does not take place is explained by the fact that the button constantly undergoes a change of position on account of the movements of the stomach itself, and as a result of the varying attitudes of the body. Consequently no one area is subjected to continuous pressure with resulting ulceration.

In regard to the advisability of using a button as a substitute for the suture, the consensus of surgical opinion has of late shown a marked reaction in favor of the suture method. There are certain points which contribute to discountenance the use of the button. These are the presence in the intestinal tract of a large foreign body with the possibility of its perforation at the site of suture or lower in the bowel, or the chance of its causing partial or complete obstruction, and the fact that in gastro-enterostomy it is doubtful whether the button provides as satisfactory an opening as the suture. On the other hand, factors favorable to its use are the rapidity with which it can be inserted and the relative ease with which it can be used in difficult cases where, on account of the depth and immobility of the parts, sutures cannot be inserted so as to form a reliable union, for instance, in certain resections in the pelvis. The suture method, as ordinarily used, offers the distinct advantage of approximating much wider serous surfaces; moreover it avoids the above-mentioned disadvantages of the button, while it does not in careful hands increase materially the danger of infection, nor prolong the operation so

much as to add perceptibly to the risk in the case of a favorable subject. Therefore, it seems proper to adopt the suture method as the best for routine work. Nevertheless the button must be regarded as invaluable in cases where speed is particularly indicated on account of the condition of the patient, and in those in which the site of the anastomosis is so inaccessible that the mechanical device offers a better prospect for a secure union.

As it may be of value to others who wish to look up this subject a partial bibliography is appended:

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128 EAST SIXTY-FOURTH STREET.

FAMILIARITY WITH GROSS PATHOLOGY.

The kind of pathology that is not only of theoretical advantage, but of practical benefit to the surgeon, is the pathology carried in his head and in his finger tips. This can only be obtained by actually handling and studying the tumors themselves, not merely for a few years, but during his whole professional life, so that he may recognize at once at the operating table the malignant tendencies of such a tumor as he is operating upon, and the microscopical picture of similar growths will at once arise before his mind's eye. No one can deny that such a training will be of incalculable benefit in the treatment of tumors.—J. SHELTON HORSLEY in *The Virginia Medical Semi-Monthly.*

A CASE OF TETANUS. RECOVERY.

BY JOHN A. HEATLY, A.B., M.D.,
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On the evening of Saturday, May 5, 1906, I was called to attend to the injuries of little J. T., aged 3 years. At 7:30 P. M., while crossing the street near his home, he was struck by the fender of a moving trolley car, thrown in the air, and falling on the fender was carried nearly 150-200 feet, with his head striking the pavement all of this distance. On examining the patient, I found a scalp wound

Fig. 1. J. T., Showing Extent of Injury.

three inches in diameter, with its anterior edge just above and behind the right ear. The wound was carefully cleansed with repeated solutions of bichlorid of mercury, sutured, and a wet dressing applied. On Sunday, wet dressings continued. When the wound was dressed Monday, it was seen that the wounded tissue would slough; so the stitches were removed, when a thin bloody serum was noticed. The bruised tissue rapidly necrosed and was dissected out on the third day following the accident. There was a peculiar black appearance of the skull under the bruised scalp, due to the heat and friction of the boy's head striking and being dragged over the pavement.

Nothing unusual was observed in the boy until the tenth day, when he complained of soreness of the jaw. On the morning of the 17th of May, risus sardonicus was present and the stiffness of the jaws was increased. Tetanus antitoxin was procured and administered. Four bottles of Mulford's antitoxin, containing 30 c.c. each, were injected every day for four days, when New York State antitoxin was used very freely, the last being employed on June 2. In all, 1,850 c.c. were used.

A rash like measles was observed on the third day. It lasted about five days. A slight attack of diarrhea developed on May 22, and lasted two or three days; stools, bloody, tarry.

Fig. 2. J. T. During Convalescence.

As there was no nurse, I took the temperature myself. It arose to 101.5° on the second day and stayed there until near the end of the attack, when it gradually became normal. The pulse was very high from the first, 140-160 or more.

Convulsions, epileptiform in character, were present after the first three days; they lasted 17 days. As the jaws were firmly locked, the child was fed by rectum, liquid peptonoids, eggs, milk, etc., being used.

The progress of the disease was from above down, even the toes being involved. The abdomen was very rigid. Opisthotonus was present. The parts affected recovered in reverse order, and by June 9th the child was entirely recovered.

The skull injury had now to be attended to. The outer table for three inches in diameter was all necrosed, and was removed. When this large space had filled in, I made flaps from the sides of the sound scalp tissue, and so gave the child a scalp with only a small space with no hair; but the hair falls over the bare space better than was expected. It took a long time to do all of this, and it was not until September that the child was discharged as a patient, and to all appearances as sound as before being struck by the car.

BOILS.

If seen early enough, it is always proper to attempt to abort a boil, since such treatment does not aggravate the condition if the effort fails, and much suffering is avoided if the attempt proves successful. The boil should be kept well covered with a tampon of cotton which is kept saturated with the following solution:

℞ Chloral ..... 3 iiss
Glycerin .....
Aquæ ..... aa 3v

Certain observers, working along the theory of the destruction of the staphylococcus, bathe small boils frequently with a lotion of salicylic acid in alcohol, 2 per cent.; or a 50 per cent. plaster changed four or five times a day to hasten the necrosis in large boils. In furunculosis involving an area of considerable size, a 2½ per cent. ointment of salicylic acid in vaselin may be applied once a day, after gentle washing with soap and warm water. Either ordinary lime water on compresses covered with oiled paper or silk, or a solution of calcium chlorid applied in the same manner, will promote suppuration more quickly than the ordinary poultice. A 25 per cent. solution of ichthyol, applied every two hours, will diminish the area involved in inflammation, and consequently lessen the pain and shorten the duration; while certain experimenters also assert abortive power for the same application. A saturated solution of common baking soda applied on a compress will relieve the pain of a boil at any stage. If applied in the very incipiency, 20 grains of silver nitrate in an ounce of sweet spirits of niter, painted frequently over the inflamed surface, will abort many forming boils.—*The Medical Summary.*

GALL-STONE OPERATIONS.

In uncomplicated gall-stone operations the mortality is 2.47 per cent.; if the operation is postponed until jaundice supervenes, the mortality becomes 10.40 per cent. Hence the necessity of early action. —W. J. MAYO in the *Canada Lancet.*

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WALTER M. BRICKNER, M.D., Editor

NEW YORK, FEBRUARY, 1907.

THE RECENT WORK UPON THE CAUSE OF CANCER.

The recent experimental work on cancer has been so prolific and suggestive of ultimate success that it seems fitting to call attention to some of the results that have been thus far obtained. Up to within the last year or two, our knowledge of the etiology of cancer was largely theoretical. The first attempt to formulate any plausible theory of tumors was the familiar one of Cohnheim. The supporting arguments offered by Cohnheim are even to-day largely unshaken and it can be safely said that this theory explains more points in the etiology of tumors than any other. Unfortunately, "we are confronted with a condition and not a theory," and the theory, if tacitly accepted, would never give us any grounds for hoping that we could become masters of the disease. As a working basis for the cure of cancer, therefore, the theory is necessarily a failure. The same may be said of the theory of eccentric origin of cancer as formulated by Ribbert.

For many years, and particularly since the bacterial origin of certain diseases had been established, the parasitic origin of cancer has never been wanting in advocates. This theory possesses the advantages of attractiveness; and the "parasites" of cancer that have at odd times been "discovered" have been numerous and of many kinds. Most of them have turned out to be merely degenerated cells or cell inclusions, such as the bodies of Sanfelice and of Plimmer; the parasites of Schüller are probably cork cells; while others have existed only in the eyes or the minds of their discoverers. The most recent parasite, the "micrococcus neoformans" of Doyen has only recently been subjected to an early but peaceful death. The basis of all this parasitic investigation has been a not unreasonable parallelism between the clinical phenomena of cancer and those of the infectious diseases. This parallelism, however, is not entirely conceded by pathologists, who hold that it is not at all necessary to explain cancer on the assumption of a parasitic origin. That a parasite cannot account for all malignant tumors was effectively pointed out some years ago by Pick in regard to the so-called chorioepithelioma—unless we would be willing to call a fetus a parasite. At all events, the burden of proof lies with the advocates of the parasitic theory and thus far they have failed to "make good."

Attempts at transplantation of cancer have for many years been made but, with few exceptions, such attempts have proven futile. In the few positive results, the graft changed its histological characteristics, and spontaneous recovery nearly always ensued. These instances have been accepted merely as evidences of tissue grafting, such as we see in the ordinary skin transplantation.

The question of cancer thus stood for a long time and there appeared to be no outlook in any direction. Clinical evidences had failed us, the microscope seemed to have reached its limit, bacteriology had been disappointing and experimental studies had all proven futile. A new line of investigation was heralded by the studies of Jensen in 1903, who showed that a peculiar mammary carcinoma occurring in mice, first discovered by Hanau in 1891, was capable of transmission to other healthy mice, in whom it assumed all the characteristics of the parent tumor. The tumor thus transmitted is known as Jensen's tumor. Jensen succeeded in his transplantations in only the small majority of cases, but Bashford, Michaelis and others succeeded in raising the percentage of successes considerably; while more recently, Ehrlich and Apolant, by means of repeated inoculations, have been able to report successes in almost every instance. These two authors have also gone far beyond the work of others in two respects: first, they demonstrated that in some instances a carcinoma could be transformed into a sarcoma; secondly, and this is of far greater interest, they succeeded in conferring absolute immunity against inoculation.

These observations are full of promise, but that promise has been clouded very recently by Roger Williams and Lazarus-Barlow, who, in a discussion before the Pathological Society of London, cast

strong doubts as to whether the Jensen tumor is a true cancer. These observers base their skepticism upon the following facts: The Jensen tumor differs from human cancer in that it is sometimes epidemic, that it is encapsulated, that it is transmissible, that it changes its microscopic and physiological characteristics after transmission, that it sometimes spontaneously disappears and that it never causes cachexia. Williams also pointed out that such mistakes had been made before, for instance, in coccidial disease of rabbits, the infectious venereal tumors of dogs, etc. It cannot be denied that these arguments have much merit. Our only consolation, however, lies in assuming that the characteristics of the tumor have been modified by the nature of the host; at all events the demonstration of Ehrlich is our one anchor at present and its import must be proven one way or the other.

There have been two other reports recently that may also prove of much significance. The first is that of Pick, who showed that thyroid adenocarcinoma of salmon occurs endemically in certain streams. The second is that of Gaylord who showed that mice kept in certain cages were very subject to carcinoma. These observations might be regarded as evidences of parasitic origin. Gaylord, with the others of the Buffalo school, regards them as significant of such an origin. Pick will not commit himself.

This is as far as we have gone. Of all the work that has been done, on only that of Ehrlich can we base any hopes. Adami, indeed, regards Ehrlich's work as the first real light that has ever been shed on the study of cancer. Along these lines much is being done at the laboratory at Frankfort. It is assuring to feel that such a man as Ehrlich is devoting all the resources of his mind, his energy, and his laboratory to this problem, for there is nothing which he has undertaken in which he has not added something truly fundamental. E. M.

SPRAINS.

Perhaps because of a certain vagueness that attaches to notions of their pathology, perhaps because in very many instances they tend to spontaneous recovery, "sprains" have not generally received the attention, nor acquired the definite therapy to which, by reason of the serious disability which may follow them, they certainly are entitled. It is generally known that sprains about joints, notably the wrist, finger and ankle joints, are frequently associated with fractures or, rather, that a fracture is often a part of such a sprain. But this is not as often remembered in practice as in theory.

To prevent the joint stiffness, joint weakness, persistent pain, that so often remain for months after a sprain, not seriously treated, it is important first, to make an effort to determine, as accurately as possible, the anatomical conditions present, and second, to adopt to them a definite therapeutic plan. In this connection we take pleasure in quoting freely from the article by Sir William Bennett in *The British Medical Journal* of December 8, 1906.

In all cases, this author urges, one should determine whether fracture co-exists or probably co-exists, and whether, by the presence or absence of referred pain and numbness, there is or is not a gross nerve lesion. This done, the treatment will depend upon whether there is swelling or is not for . . . . "for working purposes, sprains may be divided into those associated with swelling and those followed by pain and stiffness only . . ."

In the sprains without swelling the first indication is to relieve the severe pain by rest and pressure of the corresponding part of the trunk or extremity, by means of straps properly applied. "The immediate pain having been thus relieved, massage cannot commence too soon; but passive movement in these cases is better deferred for six or seven days, as secondary swelling is apt to follow its use if employed too soon. Voluntary movements by the patient may be allowed from the first, the extent of these movements being determined by the amount of pain."

In sprains with *immediate* swelling (blood extravasation) Bennett advises: "First, the arrest of bleeding by simple rest and the application of very hot fomentations, *without pressure.*" Second, to promote the absorption of extravasated material, "the increase of the immediate swelling having ceased, should the part involved be a joint, firm pressure by means of a *porous* bandage, firmly and evenly applied for twenty-four hours, followed by massage." . . . . "Should massage not be available, skilfully-applied strapping is the best alternative. . ."

Third, "for the prevention of adhesions and muscle waste, voluntary movements, massage, and passive movements rank in the order mentioned. Slight voluntary movements cannot be commenced too soon; splints, therefore, should in a general way not be used. . . . ."

In the treatment of sprains with fracture, "although massage may be, and as a rule should be, commenced at once, rest for the part in splints of some kind must be maintained for a long enough period to enable the detached piece of bone to reunite sufficiently to retain its position during voluntary movements. Hence, as early movements are essential to quick recovery, these must be *passive,* and not voluntary, as in simple sprain."

Surgical Suggestions.

Pediculosis capitis may be the indirect cause of acute torticollis by reason of a developing post-cervical adenitis.

Ichthyol, if used in ointment sufficiently strong (25% to 50%), is perhaps the most useful single medicament in aborting early superficial infections.

The addition of a little oil of citronella to an ichthyol ointment robs it of its disagreeable odor.

The occurrence of post-operative phlebitis is often encouraged by keeping the patient too long in bed.

An ulcer with indolent flabby granulations may be stimulated to renewed activity by a thorough scraping or by vigorously rubbing it with gauze.

The best thing to do in such emergencies as air embolism is to apply compression immediately and pour large quantities of solution, preferably salt solution, into the wound.

The presence of varicocele, especially if unilateral, should suggest an examination of the abdomen and pelvis for a possible growth pressing on the spermatic veins.

The superficial location of the ulnar nerve must be borne in mind when incising an abscess about the inner aspect of the elbow.

A submaxillary swelling should not be dismissed as a lymphatic adenitis without studying Wharton's duct on the same side. Massage of pus therefrom would alter that diagnosis.

No case of hemorrhoids should be dismissed after merely an external examination. The possibility that the piles may be evidences of an obstruction higher up in the intestine or in the portal circulation must always be inquired into.

A gradually increasing anemia in an elderly person, without any other symptoms, is highly suggestive of a latent carcinoma, often in the intestine.

Before attributing enlargement of the liver to a surgical condition exclude chronic hepatic congestion of cardiac disease.

A metastatic growth in a superficial lymphatic gland or a gland of the skin may sometimes deceptively simulate the appearance of a sebaceous cyst. In a patient suffering with a malignant neoplasm, therefore, the development of a "wen," especially if at an unusual situation, should be regarded with sufficient suspicion to prompt investigation of its interior.

Examination into the nature and cause of discrete hard lymphatic swellings on each side of the neck, along the sterno-mastoid, should include exploration of the pharynx and naso-pharynx for possible new growth.

Do not be in a hurry to perform primary amputations after severe traumata of the extremities. First, combat the shock and prevent hemorrhage. Keep the wound as clean as possible and only when the patient has quite recovered from his shock (at the end of a few days or more), perform the amputation.

A persistent elevation of temperature after a radical operation for mastoiditis should lead one to suspect the possibility of a complicating brain abscess. If the fever shows wide fluctuations of temperature a sinus thrombosis is more probably the cause.

Be very guarded in the prognosis of ulcerations on the sole of the foot in diabetic or tabetic patients, no matter how small or trifling the ulceration may be. They persist for long periods and may even never heal.

The thirst following a hemorrhage from gastric ulcer is best relieved by small quantities of cocain in solution.

A hasty diagnosis of ulcer of the stomach should not be made merely because the patient has vomited suddenly large quantities of blood. If the bleeding occurs at regular intervals the possibility of vicarious menstruation must be considered.

It is well to remember that not all ulcers of the stomach are characterized by the classical symptoms of pain, vomiting and hemorrhage. Many patients presenting "dyspeptic" symptoms of only mild grade are afflicted with this disease and such cases may easily be diagnosed as functional disorders until the persistence of the symptoms leads one to suspect the graver malady.

Book Reviews.

Indications for Operation in Diseases of the Internal Organs. By PROF. HERMAN SCHLESINGER, M.D., Extraordinary Professor of Medicine in the University of Vienna. Authorized English translation by KEITH W. MONSARRAT, M.B., F.R.C.S., EDIN., Surgeon to the Northern Hospital, Liverpool. Octavo; 498 pages. New York: E. B. TREAT & Co., 1906. Price, $3.00.

The main purpose of the book, as the author states in his preface, is "that of enabling medical men who are not in hospital practice to arrive at an independent opinion on the advisability of operation in cases of internal lesion." We do not recall that this subject has ever been touched upon in a separate volume before, or even adequately in volumes devoted to collective discussions. This work may therefore be said to fill a definite want. The volume is novel in another respect, namely, that a presumably surgical subject is discussed by a medical man. This feature, we believe, adds greatly to the value of the book, inasmuch as it introduces a point of view that is only too frequently wanting. The tendency to-day is for surgeons to know less of general medicine, and for medical men to know too little of surgery. This volume embraces both points of view in an excellent manner. We would expect that the book would reveal in a certain degree the conventional ultra-conservatism of the general practitioner. This, however, is not at all the case; the author is very broad in this respect and believes to a very large extent in operative methods in many of the internal diseases.

The scope of the work is really larger than the title indicates. In order that the practitioner shall have a fairly definite knowledge of the condition under consideration, the author has preceded the discussion of the indications with a brief account of the essential features of the etiology, pathological anatomy, clinical course and differential diagnosis of the disease. In addition, the contraindications to the operation are noted, the risks, prognosis, and the results if no operation is undertaken. The work is therefore practically a hand-book of the most important internal diseases. We have found very little to criticise in the text, except such things as may be taken as representing a too personal viewpoint. For instance, we do not approve of the indications laid down for operation in acute appendicitis, wherein such factors as the duration of the attack and the pulse and temperature are regarded as guides as to whether operation is necessary or not. There is no mention of the newer procedure of cholecystectomy for cholelithiasis. We might also expect in subsequent editions, some mention of the operative treatment of chronic nephritis. In most instances, the author's judgment is unusually sound. The volume is interspersed with numerous valuable references to the literature. These alone indicate the broad knowledge of the author upon the subjects under discussion. The translator can be commended for his part in the work.

Plaster of Paris and How to Use It. By MARTIN W. WARE, M.D., Adjunct Attending Surgeon, Mount Sinai Hospital; Surgeon to the Good Samaritan Dispensary; Instructor in Surgery, New York Post-Graduate Medical School, New York City. Duodecimo; 88 pages; 72 illustrations. New York: SURGERY PUBLISHING CO., 1906.

This is an attractive little volume, and is as readable and useful as it is attractive. Briefly, it is a practical manual on the uses of plaster of Paris in general, orthopedic and dental surgery. It describes the preparation and preservation of plaster bandages, the various kinds of plaster dressings, splints and corsets, the manner of their application and their removal, and the indications and contraindications for each in the various kinds of fracture, dislocation, etc., regionally considered. The important little details in method and technic, not to be learned in the text-books, are all put down.

The work is freely illustrated with original photographs and original sketches. The only criticism of the book that we would make is that the author did not always display the best judgment in the placing of the cuts on the page. This technical error in no wise detracts from the usefulness of the book, but it somewhat mars its artistic effect as a publication, otherwise evident in paper, type and binding.

Atlas and Text-Book of Human Anatomy. By DR. JOHANNES SOBOTTA, Professor of Anatomy in the University of Würzburg. Edited, with additions, by J. PLAYFAIR MCMURRICH, A.M., Ph.D., Professor of Anatomy at the University of Michigan, Ann Arbor. Vol. I. *Bones, Ligaments, Joints and Muscles.* Quarto; 258 pages; 320 illustrations; mostly all in colors. Philadelphia and London: W. B. SAUNDERS COMPANY, 1906. Cloth, $6.00 net; half morocco, $7.00 net.

A distinct service will have been rendered by the preparation for English-speaking students and practitioners of Professor Sobotta's splendid text-book and atlas of anatomy, the first in which multicolor lithography has been employed. The superiority of this method of illustrating an anatomical atlas lies not only in the beauty of the plates, but, what is more important, in their accuracy. The superb half-tones are made from careful photographs, and photographs also form the basis of the multicolor lithographs. The illustrations of the bones do not show the lines of muscle attachments, which latter, however diagrammatic or even disfiguring from an artistic standpoint, are very helpful for the student.

The text of this volume, concise but amply descriptive, has been translated by Dr. W. Hersey Thomas. In the German edition text and atlas are bound separately. We believe their combination will be approved. The Basel anatomical nomenclature was adopted by Sobotta. In this English edition it is also used, but, except in the section on myology, the terms have been largely Anglicized. These names will prove a bit puzzling to the older graduate, but the confusion will not be as great as might at first appear. Indeed, he will probably welcome this effort to encourage a universal anatomical terminology. In those instances where difficulty might be experienced the editor has supplied the older as well as the Basel title.

Syllabus of Lectures on Human Embryology: *An introduction to the study of Obstetrics and Gynecology for Medical Students and Practitioners; with a Glossary of Embryological Terms.* By WALTER PORTER MANTON, M.D., Professor of Clinical Gynecology and Adjunct Professor of Obstetrics in the Detroit College of Medicine; Fellow of the Zoölogical Society of London. *Third Edition, revised and enlarged.* 12mo; 136 pages; illustrated. Interleaved throughout. Philadelphia: F. A. DAVIS COMPANY, 1906. Price, $1.25 net.

This small book is intended as a class-room guide to the student of embryology. The first 26 pages deal chiefly with the anatomy of the adult female pelvic organs and might well have been omitted, as this information is to be found in any text-book of gynecology. The embryological sections are concise and fairly clear, no attempt being made to discuss doubtful or theoretical points. The changes in the fetal circulation incident to birth, and the pregnancy changes in the mother are also discussed. A chapter on technic and a glossary complete the volume.

Practical Dietetics, with Reference to Diet in Disease. By ALIDA FRANCES PATTEE, Graduate, Department of Household Arts, State Normal School, Mass.; Late Instructor in Dietetics, Bellevue Hospital Training School; Lecturer on Dietetics to Various Training Schools. Fourth Edition (of 10,000). Duodecimo; 311 pages. New York: Published by the Author. Price, $1.00.

It is pleasing to note the remarkable success of this practical little work. Aside from its general popularity it has been accepted as a text-book for a great many training schools for nurses and schools of domestic science, for the public schools of New York City, and for the hospitals of the U. S. Army. It has been as well recognized in Canada as in the United States. This edition shows no revision of the text, which is, however, quite up to date.

Progress in Surgery.

A Résumé of Recent Literature.

On the Sensibility of Abdominal Organs and the Influence of Injections of Cocain Upon It. L. KAST and S. J. MELTZER, New York. *Medical Record*, December 29, 1906.

Kast and Meltzer question the up-to-the-present accepted dictum of Lennander and others that the visceral peritoneum is entirely insensitive. The authors have tested this experimentally upon dogs and conclude that this insensitiveness is due to the cocain injected for the purpose of securing anesthesia of the skin. They believe that their observations may have an important bearing in practical medicine.

Schloesser's Treatment for Trigeminal Neuralgia. O. KILIANI, New York. *Medical Record*, December 29, 1906.

This method consists in the injections of 80 per cent. alcohol into the affected branches through the foramina of exit, or into the Gasserian ganglion proper, if this seems to be the origin of the neuralgia. [Special needles are required and the technic, especially that required for the ganglion, appears to be exceedingly difficult. It appears to us to be a rather blind method of attack.]

The author states that recurrences always ensue at the end of about a year, but the attacks are milder than before; the same treatment brings about prompt relief. Kiliani's report is based almost entirely on observations noted at Schlosser's clinic; he has had but little experience himself.

On Comparative Danger of the Scopolamin-Morphin Anesthesia. H. C. WOOD, JR., Philadelphia. *American Medicine*, December, 1906.

Wood has carefully analyzed the collected reports of 1,988 cases in which this method of anesthesia was administered, and finds that there have been 9 deaths for which the anesthesia can be truly held accountable. The proportion of deaths is thus 1 in 221. In 868 instances the anesthesia was unsatisfactory. In view of these facts the author believes the method should be abandoned.

A Simple Method of Treating the Appendicular Stump. HORACE PACKARD, Boston. *Boston Medical and Surgical Journal*, December 27, 1906.

Briefly, the author's method consists in the following steps: The mesenteriolum is ligated and divided in the usual way. With a suture of fine silk, the base of the appendix is buried for a short distance. The sutures begin on the meso side of the appendix and are carried upward so that the appendix lies in the anterior longitudinal band of the cecum. When the suture has been completed, the tip of the appendix is pulled upon; this exposes the base which is cut off by scissors nearly flush with the cecum; the opening immediately retracts beneath the suture line and a few more sutures bury the stump completely.

A Technical Detail in the Treatment of Fistulae *(Technisches zur Fistelbehandlung)*. V. E. MARTENS (Breslau). *Zentralblatt für Chirurgie*, December 22, 1906.

The ordinary treatment of fistulous tracts consists in curetting away flabby granulations in order to produce fresh bleeding surfaces; this usually demands an anesthetic. By means of the air-cups fresh blood can be drawn into the granulations. At the start a maximum of suction should be made so as to produce bleeding. Several cubic centimeters of blood collect in the first few minutes. Then more moderate suction is kept up for three-quarters of an hour. The treatment is continued for two more successive days. Healing follows in about one week. The treatment causes no pain, as the condition is either a chronic post-operative fistula or the remains of an accidental wound. Should the tract, however, refuse to react to the treatment, it is an almost certain indication that a foreign body remains in the wound.

Further Observations on Endemic Goiter. R. MCCARRISON, Kashmir. *Lancet*, December 8, 1906.

In the province of Gilgit, Kashmir, in India, goiter is present in a considerable number of the natives. If a native moves away from this region the goiter disappears. It occurs most frequently in the early spring months. The author does not believe that the water is the cause of the disease, inasmuch as treatment by boiled water caused no benefit. He regards the disease as being due to a parasite lodged in the intestinal tract. It is found in the feces constantly and in the earth of that region. The parasites have the appearance of ova and are carefully described by the author. He has succeeded in curing every case by thymol.

Heart Massage as a Means of Restoration in Cases of Apparent Sudden Death. With a Synopsis of 40 Cases. T. A. GREEN, Edinburgh. *Lancet*, December 22, 1906.

Green reports two interesting experiences. The first occurred in a boy, nine years of age, upon whom the author was to perform an operation for congenital umbilical hernia. Chloroform anesthesia. Just as the skin incision was being made, the pulse became imperceptible and after a few gasps the patient appeared to be dead. Artificial respiration, lingual traction and injections of strychnin and ether were tried, but without avail. Twenty-five minutes after the heart had stopped beating, Green made an abdominal incision, inserted his hand and began rhythmical massage of the heart through the diaphragm. At the end of a few minutes the heart began to beat spontaneously at the rate of about 90 to 100 beats per minute, and respiration returned. The next day, however, tonic spasms occurred, the pulse rose to 168, the temperature to 103°, and despite stimulation and salt infusions the patient died 20 hours later without ever having recovered consciousness. The second case was that of a child three years old, suffering with diphtheria with obstructive symptoms. After apparent improvement under antitoxin, the patient suddenly ceased to breathe and the heart stopped beating. Fifteen minutes later, the abdomen was opened and the heart was massaged through the diaphragm; at the same time a tracheotomy was done. As both these measures proved ineffectual, 45 minutes later the pericardium was opened through the diaphragm and the heart massaged directly. In about 5 minutes pulsation began, which, however, lasted only half an hour; respiration did not begin and after an hour and a half of work the case was given up.

The author has collected 40 cases from the literature, of which 9 proved entirely successful. Eight others were partially so. As a result of his studies the author advises the following procedures in such cases of sudden apparent death:—

1. Immediate lowering of the head and the commencement of artificial respiration and tongue traction, taking care that a free access of air to the lungs is possible and therefore implying tracheotomy if necessary. 2. If the abdomen is open, pressure on the abdominal aorta to confine the circulation to the upper part of the body. If it is not open the intravenous injection of adrenalin solution and the application of Crile's rubber suit or, failing this, tight bandaging of the limbs and abdomen. 3. The subcutaneous or intravenous injection of normal saline solution, partly to raise the blood pressure and partly to dilute any poisons which may be in the blood and tissues. 4. If the above methods have not been successful after being applied for from eight to ten minutes, heart massage by the subdiaphragmatic method. This route should always be adopted, unless the chest is already opened or to be operated upon, as being the easiest way of access, the one fraught with least danger to the patient and the one which has given the larger percentage of successes. The time is fixed at from eight to ten minutes because eight minutes is the limit of the interval at which up to the present time a complete success has been obtained in man, and if it is exceeded the danger of the production of fibrillary twitchings, inability to restore consciousness, and the development of spasms in the voluntary muscles with consequent failure of the manipulations, have to be taken into consideration. The unavoidable extension of this limit should, however, be no bar to the adoption of the method,

as very hopeful results have been obtained, even when 45 minutes have elapsed from the onset of the syncope before it has been tried. 5. After normal pulsation has returned to the heart, artificial respiration must be continued until spontaneous breathing has been restored or until circumstances make it improbable that such restoration will be obtained.

Some Notes on the Diagnosis and the Result of Surgical Treatment of Cerebellar Tumors. B. SACHS, New York. *Medical Record,* December 22, 1906.

Sachs reports his experience as the result of his observations in 22 operated cases. In not one case has the disease been cured. Several, however, have been relieved of some of the most distressing symptoms, such as headache and, particularly, impending blindness; in view of the alleviation often obtained by operation, Sachs believes in operative interference. He reports a number of cases in which such alleviation was obtained. He advises that in every case in which the patient exhibits symptoms of a rapidly advancing optic neuritis, surgical relief of pressure should be attempted. The author discusses a few points in the diagnosis of cerebellar tumors. He regards as important the early involvement of the abducens nerve. In his experience the tumor is usually on the side toward which the patient sways. This, however, is not to be taken into consideration if other signs seem to point to the opposite side. More important is the determination of the electrical reaction of the facial nerve. Early involvement of the auditory nerve is of similar significance. The author does not believe in the prolonged routine administration of mercurials and iodids. In all his experience, he has seen but three cases in which such treatment proved effectual. The danger of prolonged antisyphilitic treatment lies in the fact that the patient may come to the stage when perhaps an operation will be of no benefit.

A Case of Lingual Goiter. G. H. MAKINS, London. *Lancet,* December 8, 1906.

The case observed occurred in a woman, aged 31, who for three weeks previously had noted some difficulty in swallowing. While under observation the difficulty very rapidly increased until three weeks after the first operation, when the patient was brought to the hospital with symptoms of respiratory obstruction. On examination a tumor about the size of a walnut was seen projecting upward from the base of the tongue. The surface was smooth, paler than the surrounding mucous membrane, and at its foremost limit the foramen cecum was visible. The surface of the tumor was covered with a number of ramifying bloodvessels. Under chloroform narcosis, the tumor was easily removed, a small part being left behind to provide for possible absence of the normal thyroid. Microscopically, the tumor revealed a thyroid structure.

The author has collected between 30 and 40 cases from the literature. The vast majority occur in women and they may occur at any age. In two cases new-born infants have been suffocated as the result of the obstruction to respiration. The symptoms are obvious. The characteristics of lingual goiter are its situation, the smooth, pale surface, the ramifying bloodvessels and its intimate relation to the foramen cecum. The tumors are as a rule easily removable, the only point to be remembered being the possibility of the onset of myxedema if the entire mass is removed. It is well, therefore, to always palpate for a normal thyroid, and if one is at all in doubt as to whether it exists or not, a small piece of the lingual goiter had better be left behind.

The Technic of the Radical Operation for Femoral Hernia *(Zur Technik der Radikaloperation der Kruralhernien).* B. KADER, Krakau. *Wiener Klinische Wochenschrift,* No. 50, 1906.

Kader has used the following operation on fifteen cases with good post-operative result; the time elapsed since operation does not as yet permit of definite judgment of the final outcome. The steps are:

(1) Moderate Trendelenburg position; vertical incision over the hernia; isolation of the unopened sac, especially upward toward its neck.

(2) A second small vertical incision beginning 1½-2½ cm. above Poupart's ligament and opening the abdominal cavity. The neck of the hernial sac is freed of adhesions, the contents of the sac reduced.

(3) The sac, if empty, is now inverted either by pushing it upward from below by means of a dressing forceps, or by inserting the forceps from above into the sac and dragging it upward. If adherent intestine is encountered the sac must be opened from below and the gut first reduced Adherent omentum can be resected from above without previous reduction.

(4) The upper opening of the crural canal is closed through the upper wound by means of interrupted silk sutures which approximate Poupart's ligament to the periosteum of the horizontal ramus of the os pubis, and Cooper's ligament to the pectineus muscle and its fascia. The sutures should be passed from behind and below upward and outward in order to avoid injury of the femoral vein, and they should not be too tightly tied.

(5) The neck of the sac, which has been pulled upward and forward is now transfixed (not too near the hernial opening) and the redundant parts cut away.

(6) The stump of the sac is sutured as high as possible into the angle of the abdominal wound, being included in the closing peritoneal sutures. The peritoneal sutures are passed Lembert fashion to bring broad surfaces in apposition and are made to grasp part of the posterior surface of the abdominal muscles.

(7) The lower opening of the crural canal is sutured, either transversely or vertically; if in the latter direction the saphenous vein is ligated and resected; if transversely. the vein is spared unless it appears constricted by closure of the saphenous opening.

(8) Careful layer suture of the abdominal wound and skin. Three weeks' rest in bed.

The operation produces a tense peritoneal cone projecting upward and forward instead of the previously existing funnel-shaped depression. The hernial canal is closed in two tiers. In large herniæ a periosteal bone flap or muscle flap can be used to close the internal opening of the ring.

[This operation necessitates two incisions and exposes the general abdominal cavity more widely to accidental infections, thus doubling the dangers of the usual procedure. —R. T. F.]

General Peritonitis. Prolonged Irrigation of the Abdominal Cavity. L. R. G. CRANDON and D. D. SCANNELL, Boston. *Boston Medical and Surgical Journal,* January 3, 1907.

The authors have devised a small reservoir containing four tubes to which can be attached four long tubes which are made to pass to the hepatic, splenic, pelvic and appendicular regions, respectively; from one side of the reservoir there is a supply tube through which the irrigating fluid enters. The reservoir fits upon an aluminum plate which rests on the anterior superior spines. The purpose of this arrangement is to permit of frequently repeated irrigations of the peritoneal cavity after the operation has been performed. The irrigating fluid (salt solution) is allowed to run in until the abdomen is distended and the fluid begins to leak through the wound about the reservoir. The supply tube is detached from the bottle, pinched at the end to keep it full of fluid, and is then lowered below the level of the patient. This establishes syphon drainage and the drainage is kept up until the end of one inner tube is above the level of the remaining fluid. The irrigations can be done as often as one pleases without disturbing the patient. On the cadaver the authors have found that mechanically the method is successful. The authors tried it on one patient, but the patient died.

Hemorrhage from the Stump Following Appendicectomy. With a Report of Three Cases. W. HESSERT, Chicago. *Journal of the American Medical Association,* December 15, 1906.

Three cases of formidable hemorrhage by rectum from the stump after appendicectomy, one of them fatal, are reported. Hessert describes how such hemorrhage may occur when the dividing line between the regions supplied by the appendi-

ceal and the cecal vessels is well up on the appendix, which is the state of affairs in about 5 per cent. of the cases. Although the bleeding vessel is small in these cases, the hemorrhage takes place directly into the lumen of the colon and the clots are at once carried off by peristaltic action, and there being no back pressure or other factor favoring thrombosis, the oozing may be a very serious matter. Calculation should be made for this contingency. Mere crushing of the stump with forceps is no safeguard against bleeding. The cautery clamp would probably be the best method, but, failing this, he would first crush the appendix with a strong forceps and tie a catgut ligature around the crushed portion and then cut away the appendix. The stump, cut close to the ligature, contains little, if any, mucosa, but it can be sterilized with carbolic acid if desired. The stump is then buried under a row of Lembert sutures. Harris' method of passing the extra loop, Hessert says, does not apply in all cases and, therefore, cannot be considered as always safe. The operative technic should make all due provision against the accident of hemorrhage.

Appendicitis in Nursing Children *(De L'Appendicite Chez le Nourrisson).* E. KIRMISSON et M. GUIMBÉLLOT, Paris. *Revue de Chirurgie,* 1906, No. 10.

The authors report the case of an eleven months male infant which developed abdominal pain, distension and constipation. Sixty hours after the onset enormous distension, tenderness in the right iliac fossa and facies hypocratica were noted. The diagnosis rested between appendicitis and intussusception. At operation a seropurulent diffuse peritonitis originating from a perforated, partly gangrenous appendix was found. The child died within a few hours.

Twenty-six cases have been collected from the literature. Most of the infants were bottle-fed. Etiologically, gastro-enteritis appears to play a more important rôle than in adults. There are two modes of onset, one slow and masked by the enteritis; the other acute giving the symptoms of intestinal obstruction. In no case has rectal examination given useful information, possibly because of the high position of the cecum during infancy. Of the 26 cases 9 occurred during the first year, 17 during the second year of life; there were 19 deaths. Under one year of age all died; all the recoveries took place in children over 18 months. This may be due to the fact that encapsulated abscess appears to form only in the older children. Operation was performed 19 times with 7 recoveries.

The conclusions drawn are that appendicitis in the first two years of life is not as uncommon as is generally believed. The course of the affection is very rapid and its prognosis extremely grave.

The only recoveries obtained followed upon operation in the acute stage, which appears to make immediate operation an absolute indication. The greatest obstacle is the difficulty in making an early diagnosis.

Peptic Ulcer of the Jejunum, Following Gastro-Enterostomy for Perforating Gastric Ulcer. W. G. LYLE, New York. *New York Medical Journal,* December 22, 1906.

Lyle reports the above case, and gives a digest of the literature of jejunal ulcers following gastro-enterostomy. Thirty-one cases have been thus far recorded. Twenty-nine were males and 2 females. The time elapsing between the gastro-enterostomy and the formation of the ulcer is usually from 2 to 6 months. Of the 31 cases, 15 were anterior gastro-enterostomies, 4 anterior with entero-enterostomy, one the Y method, and 7 the posterior method with entero-enterostomy. Clinically, three types are recognized. The first is characterized by sudden violent abdominal pains with signs of perforative peritonitis. Eight of the collected cases belong to this group, 6 ending fatally. In the second type, the symptoms are similar to those of the previous gastric ulceration; pains of variable intensity occur 2 to 3 hours after eating, and in the upper left rectus region there can be made out a painful infiltration of the abdominal wall. Twenty of the reported cases belong to this class. The symptoms of the third type are those of perforation into the intestine, usually the colon, followed by diarrhea, rapid emaciation, fecal vomiting and early death. Four cases of this type have been reported. The diagnosis in the first type is almost impossible and the prognosis is bad. In the second and third type the diagnosis may be made. Treatment is almost entirely operative, except in the second form, when medical treatment has proven of most value. The etiology is obscure and many views are held. At the bottom the hyperchlorhydria is the most important factor, inasmuch as jejunal ulcer has never followed gastro-enterostomy for cancer.

Senile Parenchymatous Hypertrophy of the Female Breast. J. C. BLOODGOOD, Baltimore. *Surgery, Gynecology and Obstetrics,* December, 1906.

The life history of the female breast may be divided into periods,—the infantile, that of puberty, lactation, resting stage of the adult, and senile. Senile parenchymatous hypertrophy is more common in the breast which has never contained milk. The author reviews the tumors of the earlier ages and mentions that cystic adenoma is prone to change into carcinoma. The disease which is the subject of this paper is commonest between the ages of 40-50 but has been seen as early as 33. The lesion is considered by some to be a chronic cystic mastitis, but others as a cyst-adenoma. It has a benign and a malignant stage. The cystic type, when the cyst is single, may be removed by a very conservative operation; when small multicystic in type a radical removal is indicated (adenocystic type). The three stages observed are adenomatous, ectasia and adenocystic. In the first stage the gland tissue is more dense and in larger quantities than in the rest of the breast. In the stage of ectasia many small cavities are superadded. The final or adenocystic stage, which may never be reached, shows harder areas containing cavities with granular, non-expressible contents, minute, pinkish areas representing the adenomatous stage, and normal breast tissue in various proportions. Carcinoma is recognized by its firmer consistency, increase of fibrous tissue, granular appearance and grating under the knife.

A Case of Death from Air Embolism of the Uterine Sinuses. F. HOLYOKE, Holyoke. *Boston Medical and Surgical Journal,* December 20, 1906.

A professional abortionist had injected soap suds through a fountain syringe for the purpose of bringing on an abortion; within a few minutes after the commencement of the "operation," the woman cried for help and sank back dead. At the autopsy air bubbles were found in the right ventricle, the cerebral veins and in the liver. The left Fallopian tube was distended with air (the opening into the right tube had been blocked by the placenta); the veins throughout the body were filled with a dark reddish fluid, while the arteries were emptv. The placenta was slightly separated from the uterus, but the six months' fetus and membranes were still intact. The air embolism was accounted for by the fact that the nozzle of the syringe had fitted the cervix tightly, so that the air-containing fluid could not escape externally.

Statistics of Gonorrhea in the Husband and Its Effects on the Wife *(Zur Statistik des Trippers beim Manne und seiner Folgen für die Ehefrauen).* W. ERB, Heidelberg. *Muenchener Medizinische Wochenschrift,* No. 48, 1906.

Several statistics in Europe place the prevalence of gonorrhea among men at 80 per cent. Erb uses 2,000 cases from his private records as a basis. The patients were all nearly middle aged so that their venereal history was practically complete and a thing of the past. He found less than 50 per cent. had gonorrhea (this includes mild cases, catarrh of urethra, etc.) Of the 2,000, 7.7 per cent. had had a chancre, 18.2 per cent. a secondary syphilitic eruption, 48.5 per cent. gonorrhea, and 45 per cent. no infection. Nearly 85 per cent. acquired their gonorrhea before their twenty-fifth year. These statistics are derived from the cultured middle classes.

The effect of gonorrhea upon the wife has also given rise to many statistics. Some authors ascribe 70-80 per cent of sterile marriages to gonorrhea. Erb was able to obtain details in 400 cases in which the husband had had gonorrhea before marriage. Of these women 93.75 per cent. were free from any severe pelvic inflammation, only 4.25 per cent. had had undoubted gonorrhea, and 2 per cent. were doubtful cases. Of these patients 68 per cent. had

borne two or more children (in contrast to the "one child sterility" of gonorrhea), and of these 24 per cent. had four or more births to their credit. Only 12 per cent. had had no children. No increase of danger seemed to occur if the marriage took place even one year after the husband had been cured of his gonorrhea.

All in all, Erb regards the outcry concerning the diminution of births, and concerning disease transmitted to the wife, much exaggerated. He expects to have his views disputed, but believes that his records are reliable and the conclusions just.

The Stem Pessary for Amenorrhea and Dysmenorrhea. J. H. CARSTENS, Detroit. *Journal of the American Medical Association*, December 29, 1906.

Carstens considers the stem pessary a valuable aid in the treatment of amenorrhea and dysmenorrhea and thinks that it often aids in effecting a cure in otherwise intractable cases. As an excitant of the muscle of the organ it develops the infantile uterus, enlarges a prematurely atrophied one and brings about restoration to a normal condition when superinvolution has occurred. It is absolutely contraindicated, however, in all inflammatory pelvic states, and when adhesions exist, and its introduction should be made only with all the care against septic infection as in a case of complicated abdominal surgery. As the stem is liable to be forced out he finds it best, as a rule, to insert a Hodge-Thomas pessary to throw the uterus forward and to prevent this occurring. He leaves the stem in place not less than four months and often for much longer periods, up to two or three years in some cases. In slight flexions or displacements with recurring stenosis and sterility it will sometimes cure the latter condition. It is in the troubles that are slight, from a surgeon's standpoint, but most distressing to the patient and trying to the physician, that the employment of the stem pessary is indicated.

Colpeurynter vs. Knife? A Case of Inversion of the Uterus of Puerperal Origin *(Kolpeurynter oder Messer? Ein Fall von Uterusinversion puerperalen Ursprunges)*. F. v. NEUGEBAUER, Warsaw. *Zentralblatt für Gynäkologie*, No. 47, 1906.

A primipara of 19 years was confined by a midwife. As the placenta did not come at once, the midwife pulled on the cord. A complete inversion of the uterus, accompanied by severe hemorrhage, was produced. The patient came to the hospital three months later in a very anemic condition. The classical findings of inversio uteri were present. The uterine tumor was about the size of an apple, red and velvety; the tubal openings could be seen. For two days the colpeurynter was tried, but the patient would not tolerate more than 350 gms. of fluid, and a slight decubitus developed on the uterine mucosa. The same treatment was continued at intervals for two months. Several severe hemorrhages occurred during this time.

Finally Neugebauer was forced to operate. He split the lower part of the uterus (constricting ring) after having performed a posterior vaginal section, and was able to reinvert and suture the operative wound. During the conservative treatment a daily rise of temperature to 101°-103° constantly appeared to point to a threatening infection. The literature of the condition in question is dealt with in the original article.

Contributions to the Technic and Indications of Pubiotomy *(Beitrag zur Technik und Indikation der Pubiotomy)*. W. ZANGEMEISTER (Königsberg). *Zentralblatt für Gynäkologie*, No. 48, 1906.

The two chief technical points which arise are—should the needle be introduced from above downward, or vice versa; is an incision admitting the palpating finger necessary. The author regards introduction from below upward easier, as even in fat subjects the lower margin of the bone is readily palpable. By this method the crura clitoridis are not injured until the bone separates, the cavernous vessels being then torn and not sawn across, thus materially reducing the bleeding. It is important to pull the vulva toward the opposite side before introducing the needle so as to make a trap-door opening; this reduces the danger of infection. By this route an orienting incision need not be made, as below the instrument can be felt and guided from the vulva, and above it at once becomes palpable above the bone.

Bumm's needle is the most suitable instrument. Its point may be advantageously rounded in order not to engage and stick in the periosteum. This will necessitate minute incisions at the place of insertion and exit. It is also well to lengthen the curved part of the needle by several centimeters in order to avoid the necessity of depressing the handle too forcibly in fat women. The needle and saw should be introduced as close to the median line as possible; there is no danger of severing at the symphysis as the saw will glide away from the convex posterior surface at the median line. The separation of the bony surfaces is greater the nearer the section approaches to the symphysis. If these methods are used pubiotomy can be employed in private practice outside of the hospital.

After performing the pubiotomy the ideal procedure is spontaneous labor. In cases in which the genital tract is infected symphysiotomy is a very dangerous operation, and pubiotomy is much less so. When the pains are weak, or in multiparæ who have previously had dead children on account of narrow pelvis the labor may be hastened, but in primiparæ the obstetrician should not interfere, as the danger of injuring the soft parts is greatly increased. Of the active methods of interference version and extraction is the most conservative and effective. In some instances, when the head can be pressed into the pelvis by manipulation from above, forceps are indicated. In many cases it is best to pass the saw, leave it in position and then perform the version. As it is impossible accurately to gauge the proportion of the head to the pelvis, it will be found that many heads will pass without great resistance; should marked and dangerous delay be threatened it is only the matter of a few moments for an assistant to sever the bone with saw in place. This method of prophylactic version, with the saw in position, gives great promise in the treatment of narrow pelves. Two cases in which the aftercoming head was delivered without pubiotomy, are detailed to show the value of this maneuver.

Symptoms of Cancer of the Uterus. J. G. CLARK, Philadelphia. *Journal of the American Medical Association*, December 8, 1906.

The evils of procrastination in the diagnosis of uterine cancer are emphasized in this article, and the old notion that marked irregularities, floodings and leucorrhea at the menopause are normal in any sense should be done away with. Another fallacy with serious consequences is the hereditary theory, the assumption too common in the past, that symptoms could not mean cancer because there was none in the family history. The fact that cancer is a disease of middle life, also cannot be too strongly emphasized. As shown by a chart, at least 90 per cent. of the cases occur between the ages of 40 and 50. Another fact on which stress has been laid is the importance of injuries of childbirth as a causative factor. Sampson has shown that in 412 cases only 3 per cent. had not been pregnant. The suggestive signs calling for an exhaustive examination in a woman between 22 years of age and the menopause are given by Clark as follows: "1. Any deviation of the menstrual period in the way of an excess or an intermenstrual discharge, especially in women beyond 30 yeears of age. The most suspicious of these are: (a) a mere show after slight exertion, defecation or coitus; (b) increasing length of the period, even if only one day more than has been her established habit. Every woman is a law to herself in this respect. 2. An exacerbation in amount or change in character of the discharge in a woman who may have had a simple leucorrhea for months or years. Of these changes a free aqueous, acrid, or blood-tinged discharge is especially portentous. 3. A leucorrheal discharge in a patient who has never had it before. 4. Every atypical discharge in a woman after the menopause. These individuals are especially liable to cancer and should, if possible, be even more exhaustively examined. 5. Pelvic pain of more than a few days' duration should be an urgent reason for examination, although it is very seldom an early symptom of cancer." Clark insists on the use of the microscope, especially when in doubt as to the diagnosis from the early symptoms. In case of cancer of the fundus of the uterus the microscope becomes the principal diagnostic aid.